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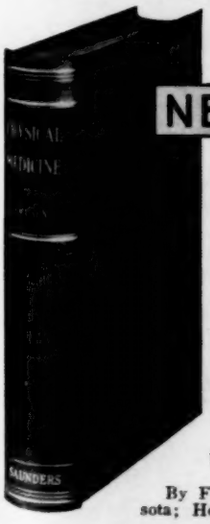

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DIAGNOSIS: A RESPONSIBILITY OF THE SURGEON

CHAIRMAN'S ADDRESS

LLOYD NOLAND, M.D.

FAIRFIELD, ALA.

One may be accused of that failing so common in those of advancing years—looking backward rather than forward—but perhaps this may be forgiven when memory turns to one's early days, when the roentgen ray was a curiosity and the wearing of rubber gloves was regarded as effeminate. Those were days when many present day laboratory procedures were unknown and when a blood transfusion was a formidable, if not practically impossible, procedure. In other words, I refer to the days in which surgery was growing up. It was a period which saw an enormous advance in technical skill and the rapid development of new surgical methods, but still the day when any major surgical operation was regarded as an extremely serious matter.

The able surgeon of that period was forced to make a most careful study of each patient; not only to make a diagnosis, but for his own protection he had to analyze each patient with bitter scrutiny to determine that patient's chances of surviving any procedure decided on. In this analysis and at that time there were few, if any, stereotyped laboratory procedures which might give information on the hidden dangers of major surgery (blood chemistry examinations, basal rate determinations, electrocardiograms, roentgen ray examinations and so on). The surgeon was forced to rely largely on his shrewdness of perception and the correlation of certain factors in the patient's examination which chimed with previous experiences in the surgeon's life.

Having no means of estimating risks by any set mathematical formulas, men developed safeguards of their own, their ability of setting a standard of value by the judgment of which the patient might or might not be considered a reasonable risk. It was the surgeon who created and used this standard of values, which actually rested on the interpretation of findings brought to the examiner through the operation of his five senses. In the practice of surgery this must always be true. Despite more recent developments in the technic of physical examination with regard to mechanical devices, the surgeon is wisely guided by the primitive matters referred to, not only when arriving at a diagnosis and in the estimation of risk, but throughout all the steps of an operation as well.

The examining hand has never read a book printed by type, but it has enlarged its scope of usefulness and knowledge a thousandfold. It has partaken of the fruits of mistakes and gained much thereby. It brings news to its possessor beyond all price, at the time when it is needed the most. This one faculty may stand as an example of the value of simple things. Such a thing can never be replaced by any machine-like examination devised by man or by the opinion of a medical colleague.

Has the almost unbelievable advance in the actual art of surgery in the past fifty years tended to make us careless of our responsibility to the patient in the sense that we lose sight of his individuality—the individuality of his disease? Is the science of surgery being lost sight of as the art of surgery develops? Have we centered too much of our attention on how an operation should be done and overlooked the broader problem of whether it should be done at all? Have we lost sight of the fact that the primary goal of surgery is not operation but cure of the patient? Does the development of group practice and large clinics tend again to make surgery the humble handmaiden of medicine, as it was a hundred years ago? Probably not, but any thinking man must be impressed by the fact that all too frequently the diagnosis on which surgery is now undertaken is made by the internist, and that many surgeons operate on such diagnosis alone.

The possibility that operative skill may be more or less born in a certain individual may be admitted, but diagnostic skill and surgical judgment can be acquired only by long experience, careful thought and study, and by honest evaluation of past mistakes as well as successes. There can be no question that the surgeon, in order that he may fulfil his functions in the fullest sense, must possess certain highly individual powers. These are difficult to define, but one of them is bound up in the accuracy with which he is able to estimate the general condition of any or all of his patients as surgical risks. In a limited sense only should his final opinion be influenced by his consultants.

Accurate diagnosis depends on two main factors: first, full and complete information on the patient and his disease; second, interpretation and evaluation of this information. In this last item must be compressed the observations of a lifetime. Information is gained in three ways: from the history of the patient, from the physical examination and from laboratory tests. Evaluation depends on the ability of the surgeon to view the picture as a whole, based on long experience, the fearless consideration of past mistakes and absolute honesty of purpose.

Of the diagnostic methods, inspection and palpation are most important to the surgeon. Inspection, which has the widest application, is the most neglected, prob-

Read before the Section on Surgery, General and Abdominal, at the Ninety-Second Annual Session of the American Medical Association, Cleveland, June 5, 1941.

ably because it is the most simple and apparently the easiest. It must never be forgotten that the examiner must see with the mind as well as the eye; that is, he must think as he looks. Inspection forms that part of our examination which is so intimately related to the history. It should be broad and all including. Its interpretation must condition our subsequent conclusions. To quote from Clendening: "Disease leaves its mark upon the look in a man's eye, the mottling of his skin, the swing of his leg, the bend of his back, and the heave of his chest. It is for you to read these signs." Palpation confirms and extends inspection and adds certain information of its own. It informs us as to the degree of pain and tenderness, spasm, fluctuation, heat, consistency of tissues, the presence of masses or tumors, their size, contour and location. The education of the palpating hand is just as important in the making of a preoperative examination as in the exploration of the abdomen or other body cavity. On interruption of the examining hand may depend the life of the patient.

Much information is to be gained from percussion and auscultation, and no surgeon should neglect practice in these special arts. Interpretation of roentgen ray studies has become increasingly important, and the careful and conscientious surgeon will not neglect constant practice in this field or place full dependence on the readings of others.

A broad and comprehensive knowledge of gross pathology is not only invaluable but essential, and this can be acquired only by long practice and study. The "feel" of the tissue in situ, as well as its gross study after excision, if made note of constantly and checked against microscopic findings, is the foundation on which such knowledge is built.

The art of surgery—technical skill combined with a broad knowledge of procedure and technic, together with that special ability to evaluate rapidly any situation and to carry out boldly the judgment formed, is being acquired by a rapidly increasing number of American surgeons. There is danger, however, that the science of surgery—diagnostic skill involving not only the physical examination but a thorough study of the patient as a whole—is being neglected.

If the surgeon can arrive at accurate diagnosis by inspection, palpation and the history and by the same means determine the degree of risk to which it is logical to expose his patient, his students will soon follow in his path.

There is a growing tendency to seek the solution of our problems in medicine and surgery through the means of a chapter in a book or through the medium of some laboratory test. The solution of most surgical problems, as well as accurate evaluation of the risk we plan to bring to our patient, must be based on a far broader view. What we see, feel and elicit from the patient's history, the question of weight loss, pallor, dyspnea on exertion, even the nutritional quality of the muscles of the neck, are all signals of great value. The old saw of the prize ring that when a man's neck withered his number was up might be passed on by the surgeon to his students as applicable to the broad field of surgical risk.

Does every surgeon give full consideration to such questions as the psychologic state of the patient, his reactions, his age, his symptoms, his physical findings and laboratory reports? Is every surgeon allowing himself the time and patience to evaluate fully these findings to determine the risk involved to the patient as against a reasonable expectancy of cure? When such studies are made on each and every patient before operation, then and then only will American surgeons reach the ultimate goal.

RESULTS OF RADIUM TREATMENT OF CANCER OF THE UTERINE FUNDUS

WITH SPECIAL REFERENCE TO THE MICROSCOPIC GRADE OF THE LESION

ROBERT E. FRICKE, M.D.
AND
CHARLES O. HEILMAN, M.D.
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ROCHESTER, MINN.

The treatment of carcinoma of the uterine fundus is mainly a surgical problem, owing to the slower growth of the cancer, its practical encapsulation for a considerable time within the thick muscular uterine walls and its usually late tendency to metastasize.

However, there is in many instances a choice of treatment. Radiologists have considerable interest in treatment of carcinoma of the uterine fundus; especially in two groups of cases: in the first instance, in extensive malignant lesions too widespread for any curative surgical intervention but susceptible of receiving much help from limited radium therapy; second, in favorable small lesions which would be excisable except for the poor general condition of the patient, often suffering from other serious diseases not related to the cancer.

While much real good can be accomplished in the former group, the second group is also of considerable size and is of greater interest as five year survival may be achieved by well planned treatment.

In 1931 the results of radium therapy at the Mayo Clinic in this condition were reported by Bowing and one of us (Fricke [1]), including all cases from 1915, when radium therapy was started, to 1928, inclusive. The five year survival rate in cases in which treatment with irradiation alone was administered by the technic employed at that time was 12.63 per cent. This study analyzes a later group from 1925 to 1935, inclusive, and is concerned with the results of radium treatment alone.

Radium therapy is not an ideal form of treatment for cancer of the uterine fundus. One is trying to destroy a hidden cancer in an enclosed cavity. It is impossible to inspect or determine the exact boundaries or spread of the malignant tissue. All one can be certain of is the fact that the curet has produced demonstrable cancer cells from the uterine endometrium and such information of the extent of the growth as can be obtained by careful pelvic examination. However, good results and cures have been obtained by radium therapy, usually supplemented with roentgen treatment. These have been achieved by divided dose treatments so placed that homogeneous irradiation is applied to the entire length of the uterine canal. Brass tandems containing the radon are inserted first in the depth of the uterus and, on successive treatments, in the midportion and anterior portion of the canal, the number of applications depending on the length of the canal.

From the Section on Therapeutic Radiology, Mayo Clinic.
Read before the Section on Radiology at the Ninety-Second Annual Session of the American Medical Association, Cleveland, June 6, 1941.

1. Bowing, H. H., and Fricke, R. E.: Radium as an Adjunct to Surgery in the Treatment of Carcinoma of the Fundus of the Uterus, Am. J. Roentgenol. **26**: 738-745 (Nov.) 1931.

The prognosis in any type of cancer treatment is a very important consideration. While, as a rule, we avoid discussing the problem of cure or future tenure of life with a patient suffering from a serious malignant lesion, the family of the patient and her referring physician are entitled to all available knowledge concerning the chance of cure or the extent of palliation that any therapeutic measure is likely to achieve. All of us realize that we have some certain information regarding end results in groups of patients and that each patient may not react typically but is an individual problem. Hence, study of any feature of a malignant disease which helps to analyze the situation and improve our prediction of the result of treatment is of considerable importance.

The prognosis depends mainly on the stage or extent of the malignant lesion when the diagnosis is made, as pointed out by Ward and Sackett [2] and by many others. This is not so easy to determine in carcinoma of the fundus, where the lesion is hidden, as in carcinoma of the uterine cervix, where inspection and palpation afford a better idea of the tissues involved. Broders' [3] grading of carcinoma cells is of considerable importance and, while not fully appreciated as yet, is coming more and more to be of considerable prognostic value.

So far not enough is understood of the significance to enable one to treat a grade 4 carcinoma differently from a grade 1, although in many cases the type of therapy chosen, irradiation or surgical intervention, does depend on this grading. The importance of grading has been brought out recently by Masson.[4] In the majority of cases carcinoma of the uterine cervix is of grade 3 or 4 and responds readily and quickly to irradiation. The majority of carcinomas of the uterine fundus and of the rectum, however, are of grade 1 or 2.

The general impression has gained ground that cancers of high grade microscopically (grades 3 and 4), although they tend to grow more rapidly and to metastasize earlier, succumb more quickly to irradiation. Low grade cancers (grades 1 and 2), which grow slowly and metastasize late, have gained the reputation of being resistant to irradiation. These impressions undoubtedly have arisen through the study of treatment of cancer of the uterine cervix. The studies of Bowing and one of us (Fricke [5]) have shown, however, that end results of treated cancers of the cervix according to grade are about equal among grades 2, 3 and 4. (There are too few lesions of grade 1 to consider; lesions of grades 3 and 4 predominate.)

However, the excellent results of irradiation achieved in some cancers of the rectum and uterine fundus, which are usually low grade cancers, have prompted us to analyze results of irradiation in the uterine fundus to see if the predominating grade 1 and 2 lesions were not more sensitive to irradiation than generally supposed.

Between 1925 and 1935, inclusive, 330 patients who had carcinoma of the uterine fundus received treatment at the Mayo Clinic. Of this number 115, or slightly more than a third, had no operation performed but were treated entirely with radium or with radium and roentgen rays. This large number were not good surgical risks because of their relatively advanced age (the average age of the irradiated group was 60.6 years) and in 75 per cent of the cases because of the presence of other serious diseases such as obesity, hypertension, cardiovascular disease, secondary anemia and diabetes, along with extensive malignant lesions in most cases (60 per cent of the total were of stages 3 and 4). Twenty-four per cent of the patients treated only with irradiation had no serious concurrent disease but were not subjected to surgical intervention because the lesion was inoperable.

As mentioned in a previous paragraph, the stage or extent of the lesion at the time of treatment is a major consideration in determining prognosis. This is well borne out in studying the results of the 109 cases traced for at least five years in which treatment was by irradiation only. As one would expect, the majority were in an advanced stage of the disease. While "stage" is not as definite as in carcinoma of the cervix, we follow the outline used in a previous study. Briefly, in stage 1 the lesion was limited to the uterine cavity within the level of the internal os. The uterus was movable and not enlarged. In stage 2 the uterus usually was increased in size, the lesion infiltrating deeply the fundal walls. The uterus was still movable. In stage 3 there was definite infiltration of the parametrium on one or both sides with limited mobility of the uterus, or infiltration of one parametrium with fixation of the uterus or infiltration of a large part of the cervix with or without involvement of the vaginal walls, or in some cases isolated metastasis in pelvic nodes accompanying a small primary growth. In stage 4 the uterus was enlarged and fixed; remote metastasis or general carcinomatosis was present in some cases.

TABLE 1.—*Histopathologic Characters of Carcinoma of the Fundus, 1925-1935*

	Patients		Lived 5 Years	
	Number	Per Cent	Number	Per Cent
Adenocarcinoma	82	75	35	43
Squamous cell epithelioma	12	11	2	17
"Carcinoma"	6	6	3	50
Sarcoma	2	2	1	50
No tissue	7	6	1	14
Total	109	100	42	39

As many patients are referred after treatment given elsewhere which has modified the lesion definitely (cautery, radium, roentgen rays), we have divided our patients into a primary and a modified or previously treated group. Of the 109 traced cases in which treatment was by irradiation alone, 93 were in the primary group and 16 in the modified group. Of the 93 primary lesions, 57 per cent were of stages 3 and 4. Of the modified lesions 75 per cent were of stages 3 and 4. Considering the primary and modified cases together, the five year cure rates were as follows: 93 per cent in stage 1, 52 per cent in stage 2, 34 per cent in stage 3, and 6 per cent in stage 4.

Although, in the majority of these patients the lesion was well advanced (only 15 of the 109 were stage 1), and most of them had serious concurrent diseases, the risk of treatment proved reasonably small. Complications occurred during treatment in 10 patients or 9 per cent of the total of 115 (including 6 patients not subsequently traced). Among these 10 patients with complications there were 3 hospital deaths, a treatment mortality of 2.6 per cent, and of these 1 died of a cause not related to cancer or to the treatment.

2. Ward, G. G., and Sackett, N. B.: Results of Radiation Therapy for Carcinoma of the Uterus at the Woman's Hospital, New York, 1919-1932, J. A. M. A. **110:** 323-326 (Jan. 29) 1938.
3. Broders, A. C.: The Grading of Carcinoma, Minnesota Med. **8:** 726-730 (Dec.) 1925; The Grading of Cancer: Its Practical Value, editorial, Am. J. Clin. Path. **5:** 254-256 (May) 1935.
4. Masson, J. C.: Carcinoma of the Uterus, New Orleans M. & S. J. **92:** 235-243 (Nov.) 1939.
5. Bowing, H. H., and Fricke, R. E.: Radiosensitivity of Malignant Neoplasms of the Uterine Cervix, J. A. M. A. **111:** 1902-1906 (Nov. 19), 1938. Bowing, H. H.: Carcinoma of the Cervix Uteri: Factors Influencing Prognosis, Minnesota Med. **23:** 85-93 (Feb.) 1940.

Microscopic examination of the curetted material was made in all but 7 cases. In these 7 cases the lesions were modified, and characteristic tissue was not obtainable. All but 1 of these patients succumbed to cancer shortly after treatment.

The histopathologic characters of the remaining cases and the five year survival rates are listed in table 1. In 75 per cent of all the cases the diagnosis was adenocarcinoma and in 11 per cent it was squamous cell epithelioma, with a scattering of lesions called carcinoma and sarcoma. The five year survivals were 43 per cent in the adenocarcinoma group, but only 17 per cent in the squamous cell epithelioma group.

Finally, the grade of the malignancy in the 109 traced cases in which treatment was with irradiation alone showed a predominance of grade 1 or grade 2 over the higher grades. As may be seen in table 2, grades 1 and 2 were 56 per cent of the total, and grades 3 and 4 were 31 per cent.

The five year survival rate showed a definite relation to grade of malignancy, the survival rate decreasing as the grade increased.

TABLE 2.—*Grade of Malignant Change in Carcinoma of the Fundus, 1925-1935*

	Patients		Lived 5 Years	
	Number	Per Cent	Number	Per Cent
Grade 1	19	17	15	79
Grade 2	42	39	14	33
Grade 3	16	15	4	25
Grade 4	17	16	2	12
Malignant but not graded	8	7	6	75
No tissue	7	6	1	14
Total	109	100	42	39

COMMENT

While the importance of the stage or extent of carcinoma of the uterine fundus in prognosis is well known, the significance of the pathologic grade of the cancer cell is not so well understood. While most lesions nowadays are graded under the microscope, the significance of the grade is little appreciated. One treats adenocarcinoma just as one does squamous cell epithelioma, and low grade cancer the same as high grade cancer. In general, lesions of low grade are considered resistant to irradiation and surgical intervention generally is advised, probably owing to the favorable experience in the treatment of high grade cancers of the uterine cervix.

In this particular group of cancer of the uterine fundus, predominantly low grade, all treated by radium and followed up, the cures vary with the microscopic grade of the lesion, grade 1 lesions showing the largest percentage of cures and grade 4 the smallest. Hence, from this study we feel that consideration of the grade of the lesion should be an additional prognostic factor in the irradiation of carcinoma of the fundus.

SUMMARY

Cure of cancer of the uterine fundus is mainly a surgical problem, owing to the slow growing, less malignant features inherent in cancer in this location. Irradiation often is deemed ineffectual in malignant lesions of low grade on microscopic examination.

However, radiologists often are called on to treat many cancers of the uterine fundus, either because the lesion is extensive and beyond surgical help or because the advanced age of the patient or the presence of serious concurrent disease entails too great a surgical risk.

The present study analyzes the results in 109 patients treated with radium or with radium and roentgen rays during the eleven year period 1925 to 1935, inclusive. Approximately a fourth of this group were denied surgical intervention because the lesion was extensive and inoperable. In the remainder the lesions were less extensive but were not subjected to operation because the surgical risk was considerable owing to the advanced age or poor general condition of the patient or the presence of other serious disease.

Carefully planned intensive broken dose radium therapy achieved five year cure in 39 per cent of the 109 patients.

Probably the stage or extent of the malignant process, difficult as it is to determine with any accuracy, is still our best prognostic guide. For example, results of radium treatment at the Mayo Clinic from 1915 to 1928, inclusive, reported by Bowing and one of us (Fricke[1]) showed five year cures in 102 cases in which treatment was only by radiation to be 12.63 per cent; 80, or 78 per cent, of these lesions were of stages 3 and 4. In the present study of data on 109 patients treated only by irradiation, 39 per cent gained five year cures but only 60 per cent of the lesions were of stages 3 and 4. In other words, this study presents the results of irradiation in a more favorable group of cases with less extensive lesions.

However, we found the microscopic grade of the lesion to be also a valuable prognostic guide. We were especially interested in the results of irradiation in a low grade malignant condition regarded generally as radioresistant and to be treated surgically whenever possible. We were agreeably surprised to find the five year cures directly related to the grade of the lesion; grade 1 yielded by far the best results and grade 4 the smallest number of cures.

CONCLUSION

While we believe that cancer of the uterine fundus should be treated surgically where possible, we feel that, where there is definite surgical risk, irradiation offers a distinct chance of cure. The less extensive the lesion, the greater the chance of cure. Also lesions of low grade microscopically have the best chance of cure. In the past physicians have been unduly pessimistic of the results of irradiation in low grade malignant lesions. In this series the lesions do not appear to have been radioresistant.

ABSTRACT OF DISCUSSION

DR. U. V. PORTMANN, Cleveland: The authors show that the microscopic grading of tumors is indicative of curability. They report that 30 per cent of their patients were irradiated because there were indications that the malignant tissues could not be removed surgically, or the patients were in such poor physical condition that operations would be unduly hazardous. They found that the proportion of five year survivals of the patients treated with radiation had direct relationship to the extent of involvement in the following ratios: group 1, 93 per cent; group 2, 52 per cent; group 3, 34 per cent, and group 4, 6 per cent. The histologic grading of the tumors also had similar relationship to extent in that the five year survival rates were in the proportion of grade 1, 79 per cent; grade 2, 33 per cent; grade 3, 25 per cent, and grade 4, 12 per cent. At the Cleveland Clinic between May 1921 and May 1941, 260 patients were treated; 29 per cent by operations alone, 53 per cent by radiation including radium or roentgen rays and a combination of these methods, and 18 per cent by operations plus radiation. In our experience, 50 per cent of the group 1 patients survived

five years, but 100 per cent of patients in the same category receiving operation alone lived that long. This suggests, as pointed out by the authors, that it often is difficult to irradiate the uterine fundus adequately with radium. We also can show practically no difference in the curability of group 2 patients by irradiation as compared with those having operation alone, but more group 3 irradiated patients survived. However, it should be noted that many irradiated patients could not have been operated on because of the extent of involvement or other contraindications to operations; yet it appears that the lives of some patients were prolonged by irradiation. Our experience in regard to the total five year survival rates for all methods of treatment, according to the extent of involvement from cancer of the uterine fundus, confirms most statistical reports similarly analyzed; namely, group 1, 73 per cent; group 2, 51.8 per cent; group 3, 8.7 per cent, and a total rate of 45.6 per cent. These results indicate that the extent of involvement of cancers of the uterine fundus is the most significant factor governing prognosis, no matter what may be the histologic grades of the tumors and the methods of treatment employed.

DR. ROBERT E. FRICKE, Rochester, Minn.: In reply to Dr. Portmann's question with regard to roentgen therapy, in our series the use of radium formed the basis of treatment, but roentgen therapy was also employed in about two thirds of the cases. I am glad that Dr. Portmann is treating more patients who have carcinoma of the uterine fundus with radiation in contrast to those for whom surgical intervention is the chief form of attack. Apparently he has impressed the surgeon, and especially the gynecologist who first examines these patients, with the good results which can be safely attained by careful technic from radiation therapy. I hope that in the future we can be as successful.

ELECTROENCEPHALOGRAPHY

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Electricity and electrical instruments have become commonplace features of present day life. Electric light, telephones, radios and electric motors are all about us, and "volts" and "amperes" are so familiar as to appear even in the comic strips of our daily newspapers. Electrical ways of doing things are numerous in the operating room, the clinic and the laboratory, from electrocautery and diathermy to roentgen ray and electrometric titrations. But few electrical instruments in the hospital, with the outstanding exception of the electrocardiograph, represent true contributions of physiology or, more particularly, electrophysiology to medicine. Most of our other electrical instruments are useful tools with which the healthy body can be studied or the sick body treated, but they do not deal primarily with the electrical phenomena or properties of the body itself.

Electrophysiology has been willing and eager to make its contributions, sometimes in fact even too eager, but its misfortunes have been that for the most part the electrical phenomena and properties have proved too subtle or too complex or too remote from primary disease processes to make them of much practical value. It is true that measurement of the electrical excitability of peripheral nerve yields some useful information in conditions of tetany and of muscular degeneration; but the concept of chronaxia, so loudly heralded from France, has been disappointing in its application, and its theoretical basis has been seriously questioned. Sometimes what might be a useful electrical approach has been properly disregarded because simpler or more familiar methods yield equally useful information. Such has been the fate of the measurement of electrical impedance of the skin in hypothyroidism and of the electromyogram in the study of muscular paralysis, tremors and athetosis. The possibilities of these methods are not yet exhausted, but we cannot yet point to them as very significant contributions. The hopes held out recently for the electrical detection of ovulation in the human being seem to have been premature, for, although a slight electrical change associated with the rupture of the ovarian follicle can be detected under favorable conditions in small laboratory animals, the successful application of the method to the study of the ovarian cycle in man now seems a forlorn hope. The finger to finger potentials that at first appeared so promising are complicated by a host of extraneous factors, and work with which I have been associated, now in preparation for publication, casts serious doubt on the possibility that there is any significant connection between finger potentials and the ovarian cycle.

Electrocardiography, on the other hand, represents an application of electrophysiology to a medical problem that is so successful and so well established as to need no further elaboration. The electrical potentials generated by the heart itself in its normal cycle of activity are recorded, and, thanks to principles established by animal experimentation and to tireless correlation between the electrical records and clinical findings and autopsy reports, the meaning of one feature after another of the electrocardiogram, both normal and abnormal, has been established. Much information as to the condition of the heart, now readily and reliably obtained by electrocardiography, can otherwise be obtained only by more difficult and devious methods, if indeed it can be obtained at all.

By an analogy with electrocardiography we hold great hopes for the latest offering of electrophysiology to medicine, electroencephalography. The brain, like the heart, generates electricity in the course of its activity, and now, thanks to improvements of electrical instrumentation and technic borrowed from radio and television, we can record the cortical potentials from the surface of the scalp with no discomfort or inconvenience to the patient. This electrical output of the cerebral cortex is the most direct objective indicator of cortical activity now available. The end results of cortical activity in the form of behavior of the individual or his subjective experiences may be perfectly real, just as blood pressure, venous pulse or pulmonary edema are real end results of cardiac activity, but the connection of particular aspects of behavior with the function of particular portions of the cerebral cortex is uncertain or indirect. Interpretations as to the physiologic (or pathologic) state of the cortex are actually based on empirical correlations, not on direct physical signs or indications of what the cortex itself is doing. It is because of just this lack of direct immediate physical manifestations corresponding to heart sounds and to mechanical pulsations of the blood vessels that electroencephalography has its great opportunity. The most complex organ in the body works silently and without mechanical movement, but it can be spied on nevertheless by detection and interpretation of its electrical output. Therefore electroencephalography has the opportunity of being of greater service to the neurologist and the neurosurgeon than electrocardiography is to the cardiologist. The question is whether the electrical

From the Department of Physiology, Harvard Medical School.
Read before the Section on Pathology and Physiology at the Ninety-Second Annual Session of the American Medical Association, Cleveland, June 4, 1941.

output of the brain is sufficiently regular, lawful and simple to be comprehended and understood and whether the differences produced by disease or mechanical interference are great enough and characteristic enough to be susceptible of sure detection.

Fortunately the first condition of regularity and relative simplicity is partially fulfilled. The patterns of electrical pulsations that appear in our written records are complex, to be sure, but the waves and the patterns that they form are by no means random. Certain wavelengths and certain definite rhythms strongly dominate the usual normal records. The voltages are circumscribed within quite definite limits. Inevitably we compare the electroencephalogram with handwriting, each word different from what comes before and after, yet made up of the letters of a limited alphabet. Each person has his own style or character of electroencephalogram just as he has his own style of handwriting, and, like his handwriting, it changes relatively little with age once he has reached adulthood. In some persons the voltage is a little higher, in some the dominant (so-called alpha) rhythm a little faster or slower or a little less regular, and in others there is less "alpha" activity and more of the smaller, faster waves, but we have now reached the stage of having delimited with some confidence the range of normal patterns and of

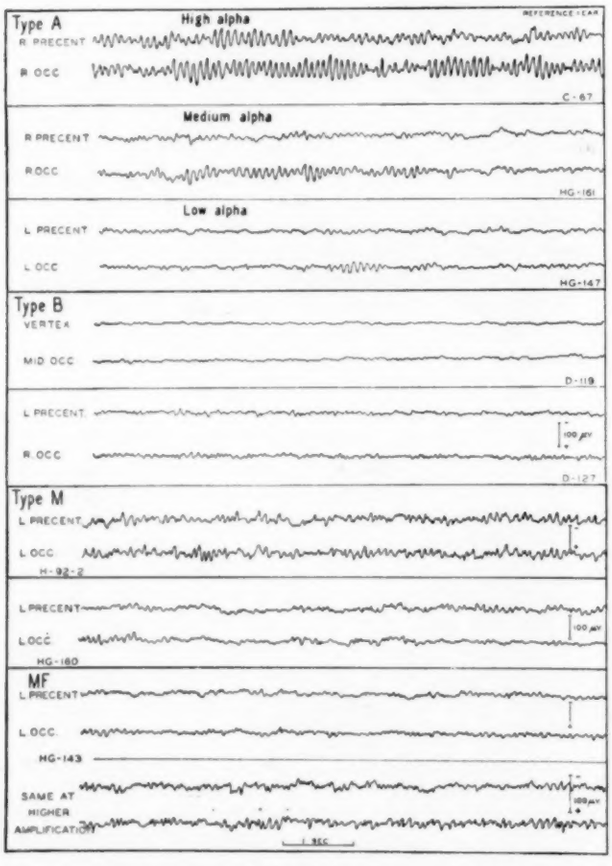

Fig. 1.—Normal electroencephalographic patterns. Standard conditions, eyes closed. Monopolar, unfiltered. (From Davis.[1])

subdividing them into fairly definite types (fig. 1).[1] It is of great interest that identical twins always have closely similar patterns of the same type.[2] The types of electroencephalographic patterns apparently represent constitutional differences and there is an increasing body of evidence that certain aspects of habitual behavior or "personality" may correlate with extremes of pattern.[3] Here may lie the basis of a future application of electro-

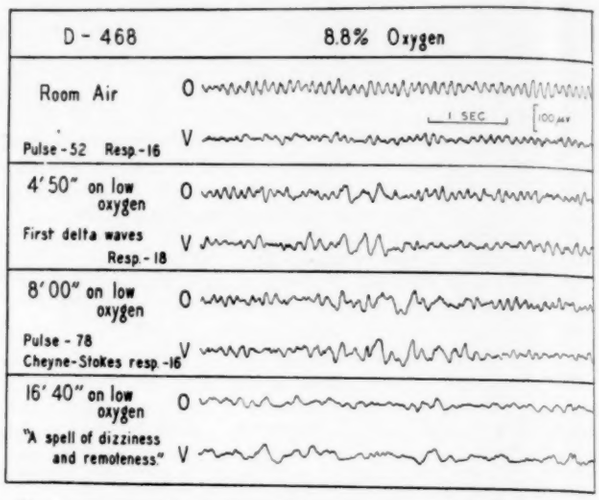

Fig. 2.—Progressive changes under low oxygen tension. (From an experiment by Davis, Pauline A.; Davis, Hallowell, and Thompson, J. W.: Am. J. Physiol. **123:** 51 [July] 1938.)

encephalography; but at least we already know reasonably well the range of normal variation and the alterations produced by sleep, by anesthetic drugs, by convulsant drugs, by lack of oxygen (fig. 2), by low blood sugar and by many other normal and abnormal conditions. And as a generalization we can say that the various conditions of depressed or reduced physiologic activity are associated with the appearance of slower waves, often of very considerable voltage and perhaps in quite definite groups and patterns, and that increased activity, overexcitability and overstimulation are associated with a reduction in the usual alpha activity and, if extreme, with an increase in faster rhythms and the appearance of sharp, brief "spikes," either singly or in rapid sequences.[4]

One of the two important practical uses of electroencephalography is the detection and localization of intracranial lesions. The principle, first applied by Walter,[5] is extremely simple. Numerous electrodes are placed in various positions on the scalp and are connected systematically to a multichannel recorder that writes simultaneously the electroencephalogram of from three to six different regions (fig. 3). If abnormal waves appear under standard normal conditions it is an indication of abnormality somewhere, and if the abnormal waves appear from only one or two regions of the head it tells us how and where the abnormality is localized. A tumor or a hematoma does not generate abnormal electrical waves, but it compresses the neighboring brain tissue and induces edema, partial anoxia or some other condition of physiologic depression; and slow, high voltage electrical waves appear from the partially damaged tissue around the tumor or hematoma. A contracting cicatrix may irritate and excite the brain

1. Davis, Pauline A.: J. Neurophysiol. **4:** 92 (Jan.) 1941.
2. Davis, Hallowell, and Davis, Pauline A.: Action Potentials of the Brain in Normal Persons and in Normal States of Cerebral Activity, Arch. Neurol. & Psychiat. **36:** 1214 (Dec.) 1936.
3. Saul, L. J.; Davis, Hallowell, and Davis, Pauline A.: Tr. Am. Neurol. A., 1937, p. 167. Davis, Pauline A.: Am. J. Psychiat. **96:** 851 (Jan.) 1940. Also Davis, Pauline A., in preparation.
4. It is impossible adequately to illustrate the range of normal and abnormal electroencephalographic patterns and the various alterations referred to in the text. The interested reader is referred to the "Atlas of Electroencephalography" by F. A. Gibbs and Erna L. Gibbs (Boston, privately printed, 1941).
5. Walter, W. G.: Lancet **2:** 305 (Aug. 8) 1936.

locally and generate sharp spikes from a restricted region.[6] A large tumor or extensive cortical atrophy may cause an unsymmetrical reduction in voltage from one or another part of the head.[7] Superficial cortical lesions cause the greatest changes in the electroencephalogram, since most of the electrical activity recorded from a scalp electrode is generated in a relatively restricted area within an inch or so of the electrode. Of course a deep seated lesion may indirectly modify the normal activity of the cortex, but in this case the abnormal pattern is usually quite widely and diffusely distributed. The degree of practical success of the method is illustrated by the following summary by Dr. R. S. Schwab[8] of a follow-up of 417 electroencephalographic localizations made at the Massachusetts General Hospital. In 115 cases the localization by electroencephalography was clear and definite and was so reported. Verification by operation or postmortem examination showed correct localization within the area of surgical incision in 84.5 per cent of this group. In 89 cases in which there was considerable doubt as to the interpretation of the electroencephalogram, but in which the best guess possible was made at the surgeon's request, the accuracy was only 43 per cent. This group contains the majority of cases with lesions in the posterior fossa. Such lesions, particularly when they cause increased intracranial pressure, may be very deceptive for the electroencephalographer and even lead him to a false localization. In 213 cases no evidence of focal lesion was found. Operation or postmortem examination has actually revealed a focal lesion in 9 per cent of these cases. Most of the remaining 91 per cent have not come to operation or autopsy table, but the present hospital diagnoses support the electro-

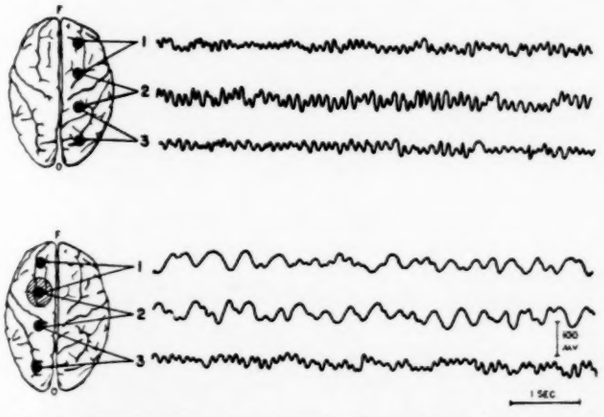

Fig. 3.—Records taken from the scalp of a patient with a left midparietal lesion. Three units are recording from the head. In the upper three tracings, electrodes are placed in an anteroposterior position in the right hemisphere. A normal rhythm of about ten per second is seen. In the lower three tracings, similar leads are used in the left hemisphere. Large slow waves of one or two per second are present in leads 1 and 2. The normal ten per second rhythm is absent. The slow waves in lead 2 form a mirror image of those in lead 1, indicating that the focus of discharge is originating under the electrode which is common to leads 2 and 1. (From Williams and Gibbs.[9])

encephalographic report. Schwab's degree of success is substantially in accord with the earlier reports by Williams and Gibbs[9] and by Yeager and his associates.[10] Schwab notes common sources of error in his series as, first, the failure to use a sufficient number of electrodes; second, the bilateral type of disturbance caused by deep lesions near the midline; and, finally, contrecoup pressure effects produced by large flat lesions (i. e. subdural hematomas) outside the cortex.

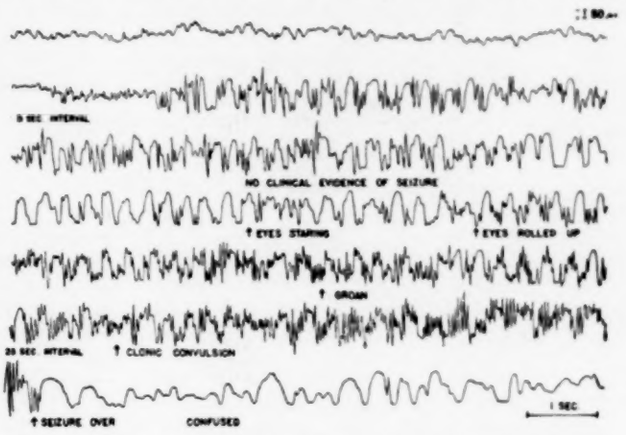

Fig. 4.—Grand mal seizure (patient C. G.). Active electrode over left frontal area. (From Gibbs, F. A.; Lennox, W. G., and Gibbs, Erna L.: The Electroencephalogram in Diagnosis and in Localization of Epileptic Seizures, Arch. Neurol. & Psychiat. **36:** 1225 [Dec.] 1936.)

The principles of localizing cortical lesions by electroencephalography are simple, but the actual procedure requires care and experience, like the taking and interpreting of roentgenograms, to avoid being misled by artefacts due to movements, bad electrical contacts, muscle potentials and the like. And the method must always be regarded as simply another laboratory test whose results must be intelligently combined with information derived from clinical symptomatology, neurologic examination and roentgen ray studies. We may sum up the situation by saying that the accuracy of detection and localization of lesions in suggestive cases is about as good by electroencephalography taken alone as by roentgenography taken alone or by neurologic examination without roentgenography or electroencephalography. But when positive indications from any two of these methods agree, then the errors in localization are very rare.

The electroencephalogram tells little or nothing of the nature of the lesion, for what we really see is the reaction of the neighboring tissue to the effects, usually the mechanical effects, of the lesion. But even the mere fact that there is such a reaction may be helpful in deciding when, for example, a patient should leave the hospital following cerebral concussion or skull fracture, and perhaps it will aid in prognosis in conditions such as encephalitis.

Another major contribution of the electroencephalogram is the improved diagnosis of epilepsy and an increased understanding of the nature of epilepsy and its genetic characteristics. An epileptic seizure, whether it is a generalized convulsion or a brief lapse of consciousness, is nearly always, if not invariably, accompanied by dramatic changes in the electroencephalogram (fig. 4). The convulsive seizure is associated with the appearance of sharp fast waves of moderate to high voltage in rapid sequence with or without the presence of slow waves in addition. It is most significant that this excessive electrical discharge, obviously the picture of overactivity, usually begins many seconds before the muscular movements or loss of consciousness. And the epileptic patient between seizures will frequently show in the electroencephalogram spikes or runs of fast

6. Jasper, H. H., and Hawke, W. A.: Electroencephalography, Arch. Neurol. & Psychiat. **39:** 885 (May) 1938.
7. Rubin, M. A.: Proc. Soc. Exper. Biol. & Med. **40:** 153 (Feb.) 1939.
8. Schwab, R. S.: Read before the American Academy of Physical Medicine, New York, April 29, 1941.
9. Williams, D. J., and Gibbs, F. A.: New England J. Med. **218:** 998 (June 16) 1938.
10. Yeager, C. L.; Baldes, E. J.; Craig, W. McK., and Woltman, H. W.: Proc. Staff Meet., Mayo Clin. **15:** 147 (March 6) 1940.

waves resembling the preliminary outburst that precedes his convulsion, but without a sign or symptom associated with them. These subliminal sputterings have been termed "abortive" or "larval" seizures. The patient is unaware of them, but they are diagnostic of a susceptibility to seizure, and in a patient subject to seizures

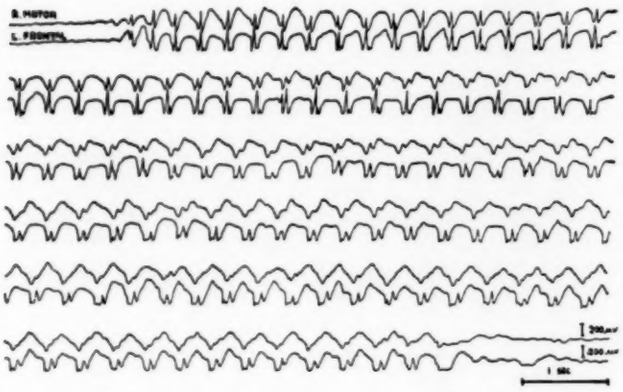

Fig. 5.—Petit mal seizure (patient O. V.). (From article cited in legend to figure 4.)

an increase in number and intensity of the larval outbursts may give warning of an approaching convulsion hours or even days in advance.[11]

The lapse of consciousness, with or without minor muscular movement, known as petit mal shows an equally dramatic and characteristic electrical counterpart (fig. 5). Large slow waves at a frequency of almost exactly three a second, with one or sometimes several sharp spikes alternating with the slow waves, are the most characteristic pattern. Sometimes the fast waves are missing, sometimes the frequency is not exactly three a second, and each person, particularly each adult, tends to show his own minor variations of pattern. It is as if each patient were writing his diagnosis on the record but that each wrote the same words in his own handwriting. The pattern of the petit mal "dysrhythmia" (to employ Lennox's term) is a curious mixture of indications of depression and of excitation; and it should be emphasized that although typical patterns may be described as corresponding to grand mal and petit mal respectively the situation is seldom so clear and simple. Most actual seizures are composite and show mixtures of grand mal and petit mal patterns or else more or less distorted variants of the petit mal type. What is important is that during a petit mal seizure, as during a major convulsion, there is an obvious and fairly characteristic disturbance of the electrical record and also that the susceptibility to petit mal is usually revealed by the appearance of larval seizure patterns between the actual clinical lapses.

Another variety of "cortical dysrhythmia" tends to be associated with the so-called psychomotor type of seizure in which the patient does not completely lose control of himself or become unconscious. The most characteristic electrical rhythm is about six rather than three a second and the waves are often unsymmetrical and monophasic (fig. 6).[12] Many varieties of electrical pattern and many gradations of odd or unusual behavior are seen, and the clear diagnostic electrical patterns and definite clinical manifestations merge gradually into what are called "generally dysrhythmic electroencephalograms" and "behavior problem" individuals. The high incidence of dysrhythmic electroencephalograms in problem children has been pointed out,[13] and here is a problem deserving much further study.

The nature of epilepsy has been clarified by the realization, stated clearly by Lennox, Gibbs and their associates, that the epileptic seizure is accompanied by a severe electrical "storm" in the central nervous system, a "paroxysmal cerebral dysrhythmia"; that patients subject to seizures show more or less of a milder form of cerebral dysrhythmia, perhaps continuous, perhaps episodal, in the intervals between seizures; but furthermore that many men and women who have never had seizures also show the same general types of cerebral dysrhythmia. Irregularity of the electrical activity of the cortex is not epilepsy but it reveals the soil in which epilepsy grows. Lennox suggests that it is primarily those with the dysrhythmic electroencephalograms who develop secondary or symptomatic epilepsy following an injury to the brain.[14] Equally important is the fact, now fairly well established, that the cerebral dysrhythmia is a hereditary characteristic that is almost always to be found in the epileptic individual himself and among his blood relatives. Here, apparently, is the hereditary element in epilepsy—the potentiality for seizures that is far more common and widespread in the population than the incidence of actual seizures.[15] What it is that determines whether or not the person who inherits the cerebral dysrhythmia will or will not suffer from seizures one cannot say. Is it a second independent hereditary element or is it some purely environmental factor? Sometimes the dysrhythmia may be very pronounced but completely asymptomatic, but sometimes, on the

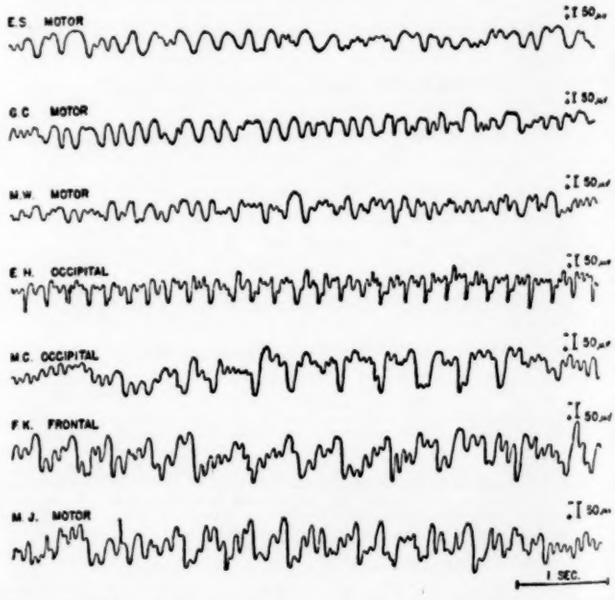

Fig. 6.—Wave formations occurring in psychomotor seizures. (From Gibbs, Gibbs and Lennox.[11])

other hand, the seizure may come, like lightning from a summer sky, in the midst of a comparatively stable and regular record.

11. Gibbs, F. A.; Gibbs, Erna L., and Lennox, W. G.: Brain **60:** 377 (Dec.) 1937.

12. Gibbs, F. A.; Gibbs, Erna L., and Lennox, W. G.: Cerebral Dysrhythmias of Epilepsy, Arch. Neurol. & Psychiat. **39:** 298 (Feb.) 1938.

13. Jasper, H. H.; Solomon, Philip, and Bradley, Charles: Am. J. Psychiat. **95:** 641 (Nov.) 1938. Lindsley, D. B., and Cutts, Katharine K.: Electroencephalograms of "Constitutionally Inferior" and Behavior Problem Children, Arch. Neurol. & Psychiat. **44:** 1199, 1940.

14. Lennox, W. G.: Science and Seizures, New York, Paul B. Hoeber, Inc., 1941.

15. Gibbs, Erna L., and Gibbs, F. A.: Inheritance of Cerebral Dysrhythmia and Epilepsy, Arch. Neurol. & Psychiat. **44:** 1155 (Dec.) 1940.

And, finally, the electroencephalogram may be useful in the treatment of epilepsy.[11] Not that in itself it is in any way a cure, but it may be used to determine what drugs and what dosages are best suited to the needs of a particular case. The number and prominence of larval subclinical episodes as well as the number of overt seizures is greatly reduced in most cases by appropriate medication with bromides, phenobarbital or phenytoin. But instead of waiting for weeks or months to determine the effectiveness of a different combination or an altered dosage we may now gain an indication in a few days of the effectiveness of the medication by simply observing the degree of stabilization of the electroencephalogram.

In the interpretation of the electroencephalogram much still remains to be explained and there are many partial contradictions to be clarified. But on the whole the trend is clear and we may justly claim that electrophysiology has given new insight into the mechanism and nature of the actual seizures of epilepsy and also into the hereditary constitution which underlies the occurrence of epilepsy.

OZENA

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Ozena is called also atrophic rhinitis, atrophic catarrh, coryza foetida and sclerotic rhinitis. However, the favorite and common term is "the opprobrium of medicine." The Germans, with their genius for expressing delicate shades of meaning and their natural use of euphemistic terms, call it "stink nose." Because of the voluminousness of the literature, this review will be limited to the etiology. The report to the Madrid congress by Leroux-Robert and Costiniu [1] contains one hundred and seventeen pages, and a total of two hundred and seventy-nine papers are listed, mostly by continental authors and mostly written since 1920, have appeared in the literature. If the true cause of ozena is ascertained, this most distressing disease, with all its pathologic and social implications, may well be eliminated.

St. Clair Thomson [2] has succinctly stated that ozena is a chronic rhinitis characterized by atrophic changes in the nasal mucosa and the turbinal bodies, abnormal roominess of the nasal passages and a mucopurulent discharge which tends to dry into crusts with a characteristic odor but does not involve ulceration or necrosis.

Wyatt Wingrave [3] gave a classic description of the pathologic changes of ozena: (1) transformation of columnar ciliated and special olfactory cells into stratified squamous epithelium, (2) disappearance of the basement hyaloid membrane, (3) presence of special hyaloid cells and pigment masses, (4) changes in the glands, (5) changes in the lymphoid tissue and the blood vessels and (6) changes in the bone.

THEORIES OF CAUSATION

In most cases ozena begins before the age of 12 years; it seldom starts after 25. The majority of observers have said that the disease is five times as common in females as it is in males. Among the conditions which have been considered the exciting cause are the following:

1. Too great shortness and width of the nostrils.
2. The purulent rhinitis of childhood (Bosworth, Lambert Lack, C. A. Parker).
3. Osteitis affecting the ethmoid bone and adjacent tissue.
4. Rarefying osteitis of the inferior turbinate bones with secondary atrophy of the mucosa (Cholewa and Cordes).
5. Disease of the accessory sinuses (Michel, Loewenberg, Grünwald, Hajek, St. Clair Thomson).
6. Focal suppuration in the nose, the accessory sinuses or the postnasal space (Grünwald).
7. Atmospheric desiccation and bacterial invasion.
8. A deficiency state.
9. Infection due to the coccobacillus (Loewenberg), Bacillus mucosus (Abel), Bacillus foetidus ozaenae (Hajek), Coccobacillus foetidus ozaenae (the Perez bacillus), pseudodiphtheria bacillus (Belfanti and delle Vedova).
10. Syphilis or tuberculosis.

I believe that the authors who name the purulent rhinitis of childhood suppuration in the accessory sinuses, a focus of chronic suppuration in or around the nose or a rarefying osteitis of the ethmoid bone actually are in agreement. If they are, the theory of focal suppuration is the most important and influential of the theories propounded. The investigators supporting it include some of the most distinguished rhinologists. The Madrid report stated that this theory was an ancient one. Vieussens and Reininger held it at the end of the seventeenth century. I have the views of Vieussens in Latin, and his language is impressive. In the modern era, Michel, of Berlin, gave the theory his strong support in his textbook published in 1876. A little later Grünwald amplified it by supporting the thesis of focal suppuration in the nose, the accessory cavities or the postnasal space. Loewenberg came to the support of the theory by reporting 79 cases of ozena in all of which he had found sinus disease.

The foundation on which rests the theory of suppuration in the sinuses is the observation of Bosworth that the purulent rhinitis of childhood is the cause of ozena. He first propounded his theory at the international congress of London in 1881. Later he said: [4]

> ". . . we meet with a large number of cases, which commence in the earlier years of childhood, in which the disease pursues an essentially chronic course, and in which a purulent discharge is the prominent feature. It is purely local in character, dependent on no constitutional dyscrasia, and consists essentially in an increased secretion of mucus in the earlier stages, together with a rapid desquamation of epithelial cells, which, running its course as a purulent disease, in from five to ten years, develops finally into what is known as atrophic rhinitis.

To me this is the most illuminating statement in the literature of atrophic rhinitis. It must be assumed that Bosworth had followed his patients from the time he first observed them in early childhood, through five or ten years of purulent rhinitis, to the stage of the disease called atrophic rhinitis. There was one stream which he did not cross but which can be bridged for him. Between him and the sinusitis theory was the objection that was stated again and again and was a stumbling block to many eminent men, including Hajek and St. Clair Thomson, namely their belief that at the time at which purulent rhinitis appeared the sinuses were undeveloped. It is now known that in childhood the antrums and the ethmoid and sphenoid sinuses are

Read before the Section on Laryngology, Otology and Rhinology at the Ninety-Second Annual Session of the American Medical Association, Cleveland, June 5, 1941.

1. Leroux-Robert and Costiniu: L'ozène, Rev. de laryng. **133**: 49 (Jan.); 172 (Feb.) 1933.
2. Thomson, St. C.: Diseases of the Nose and Throat, London, Cassell & Co., 1911.
3. Wingrave, Wyatt: Atrophic Rhinitis (Ozaena) and Tuberculosis, J. Laryng. **8**: 96 (Feb.) 1894.
4. Bosworth, F. H.: A Treatise on Diseases of the Nose and Throat, New York, William Wood & Company, 1889.

developed and that the exanthematous diseases of childhood and epidemic influenza leave many children with purulent sinusitis.

Kelly,[5] of Glasgow, made this observation:

> Anatomical investigations, postmortem examinations, and clinical experience all go to prove that the accessory sinuses of the nose, even in early infancy, may be the seat of inflammatory and suppurative processes. The infection causing these comes oftenest from tonsils and adenoids, acute colds, measles, scarlet fever, diphtheria and pneumonia.

Many rhinologists do not accept the purulent sinusitis theory but do hold that in most cases atrophic rhinitis follows such diseases as scarlet fever, measles, diphtheria and epidemic influenza.

In 1908 a symposium on ozena was held at the New York Academy of Medicine. Theisen,[6] concurring in the "herd" theory of Michel, Grünwald, Loewenberg, Hajek and others, said: ". . . I, of course, am fully aware that we can only explain a certain percentage of the cases this way. But I am convinced that a fairly large percentage of ozena cases are associated with disease of the accessory cavities." Theisen reported 60 cases and found sinus disease in 25 per cent without benefit of x-ray apparatus. With the present day aids to diagnosis he would probably have found 75 per cent of involvement instead of 25 per cent. All the patients with sinusitis on whom he operated were cured or greatly improved. The majority were children and young adults and many had a history of scarlet fever, measles or diphtheria, from which the beginning of the purulent discharge was dated.

In this symposium Robert E. Myles[7] divided the clinical course of true ozena into three stages: (1) the mucopurulent stage of childhood; (2) the incrustation,

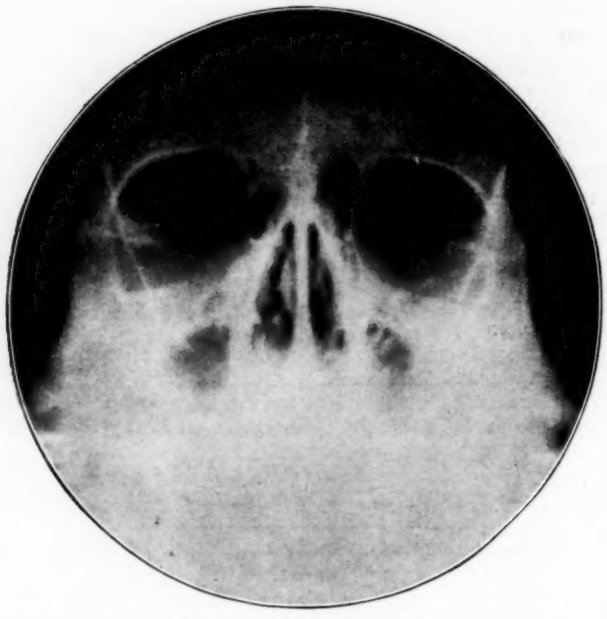

Fig. 1 (case 1).—Appearance at the age of 21, showing all sinuses clear.

or ozena, stage, occurring between the ages of 4 and 16 and never afterward, and (3) the adolescent stage, from the age of 25 to the end of life. He said that Bosworth's observations of the symptoms of the first stage had been corroborated by the clinical history of his own patients. He regarded every case of perennial suppurative rhinitis in children as a possible case of atrophic rhinitis. He commenced treatment by removing whatever obstruction there might be to breathing and increasing nasal drainage in any other way that seemed expedient. He said: "Judging from my experience, I can state that proper operative treatment of the nasal accessory sinuses, in addition to the local treatment of the other stages, has given me the best results."

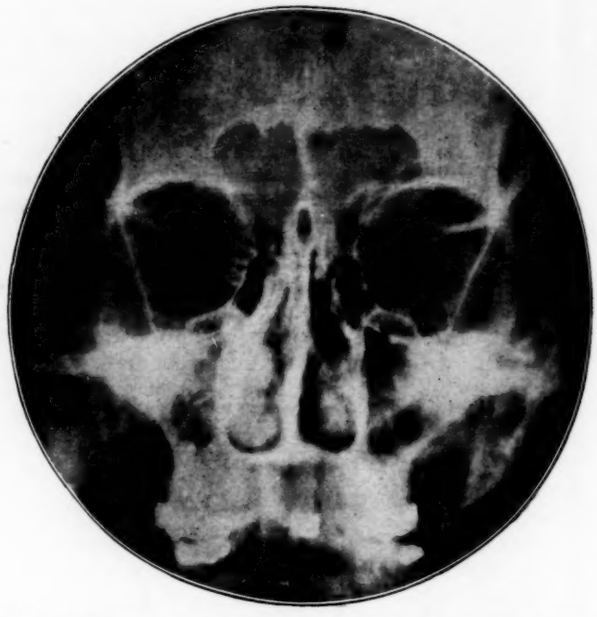

Fig. 2 (mother of first patient).—All sinuses cloudy. Author treated her for deafness and sinus trouble before birth of patient 1. Sinuses drained July 29, 1938. The sinus disease followed measles at the age of 20.

Clarence Rice,[8] of New York, said:

> I think it may be shown that we have what may be properly termed an acute atrophic rhinitis, and, secondly, a chronic atrophic rhinitis. . . . the acute form is the one occurring in children, or in young adults, preceded by a profuse purulent discharge from both nostrils, a purulent rhinitis and oftentimes brought about by some of the eruptive fevers, diphtheria or grippe. I have long felt that the purulent rhinitis of children, so ably described by Dr. Bosworth, was, in the majority of cases, if not in all, a sub-acute bilateral sinusitis.

For the time at which these observations were made I consider them extremely able. Two of the most important articles on ozena were written by James Adam,[9] of Glasgow. In 1909 he reported 30 cases in which examination was made before the advent of the x-ray apparatus. He was convinced of the great importance of chronic sinusitis as an etiologic factor in ozena. The study of 141 additional cases reported in 1934 strengthened his conviction. He found sinusitis in 93, or 66 per cent. The disease began before puberty in 78 per cent and before the age of 7 in 42 per cent. He pointed out the difficulty (and it must be admitted) of making a diagnosis of sinusitis in children, especially of the ethmoid and sphenoid cells. He said that his percentage of 66 was low, because in 20 cases there was not a

5. Kelly, A. B.: Chronic Nasal Discharge and Sinusitis in Children, Lancet **2**: 1132 (Nov. 28) 1925.

6. Theisen, C. F.: A Consideration of the "Herd" Theory as an Etiologic Factor in Ozena, Laryngoscope **18**: 417, 1908.

7. Myles, R. E.: The Treatment of Atrophic Rhinitis, Including Ozena, Laryngoscope **18**: 425, 1908.

8. Rice, C.: Atrophic Rhinitis and Ozena, Laryngoscope **18**: 435, 1908.

9. Adam, J.: The Pathology and Treatment of Atrophic Rhinitis, Glasgow M. J. **72**: 19, 1909; Atrophic Rhinitis, J. Laryng. & Otol. **49**: 375 (May) 1934.

fair opportunity for investigation. He traced 60 patients, of whom 9 were unimproved, 27 were improved and 24 were cured. He examined 15 patients from ten to thirty years afterward; 9 were cured and 6 were improved. Of 8 who had operations on the sinuses, 4 were cured and 4 improved. Two of those improved did not have all the sinuses operated on. Adam said that what struck him about the literature was the great attention paid to the last stage of the malady and the little given to the early clinical history. He quoted Leroux-Robert and Costiniu as saying in the Madrid report that atrophy, crusts and fetor are the characteristics of the disease and are its signature, and he made the pertinent observation that the signature is subscribed at the end of a long clinical document. Leroux-Robert and Costiniu are far from alone in their opinion, yet not one of these three components is the essence of the disease. With some distinct exceptions, atrophic rhinitis begins as suppurative rhinitis during or before school days. Adam made the point that the more thoroughly one examines one's patients with ozena the more often one finds sinusitis.

Adam, Hajek, St. Clair Thomson and others emphasized the point that infected adenoids may cause atrophic rhinitis. It is well known that the first thing to do for sinusitis in children is to remove infected adenoids and tonsils. The infected adenoids may block the natural drainage of the sinuses, and their removal may promote drainage to such an extent that the sinuses will clear up.

Of great importance in the study of ozena is the report on 80 cases by Gordon Hoople and A. W. Rowe,[10] which, like all Hoople's studies, is thoroughly scientific. After exhaustive examination the authors are prepared to throw light on almost any controversial question

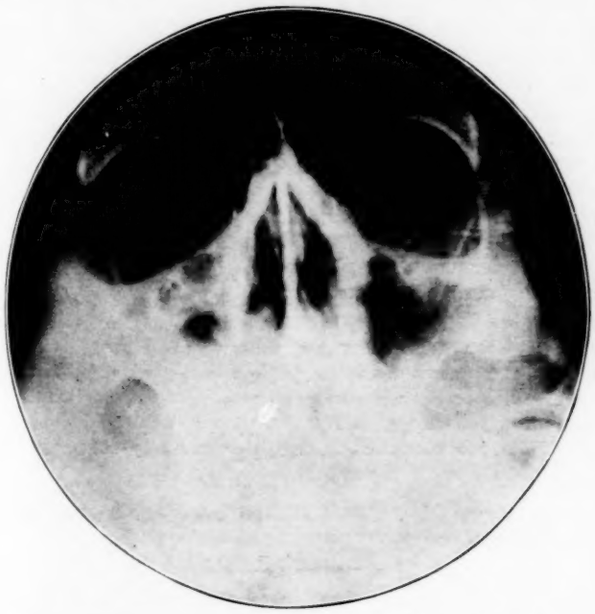

Fig. 3 (case 3).—Appearance at the age of 26, showing all sinuses clear except for slight cloudiness in right ethmoid.

relating to ozena. Every patient had a Wassermann test, a roentgen examination, an endocrine test and a determination of the basal metabolic rate. Sixty showed involvement of the sinuses. The age and sex incidence were those typical of ozena. In every patient crusting and fetor made their appearance together: no crusting, no fetor; no fetor, no crusting. There was an average interval of ten years between the appearance of crusting and fetor and the examination. Forty-nine patients, or 60 per cent, gave a history of a purulent discharge

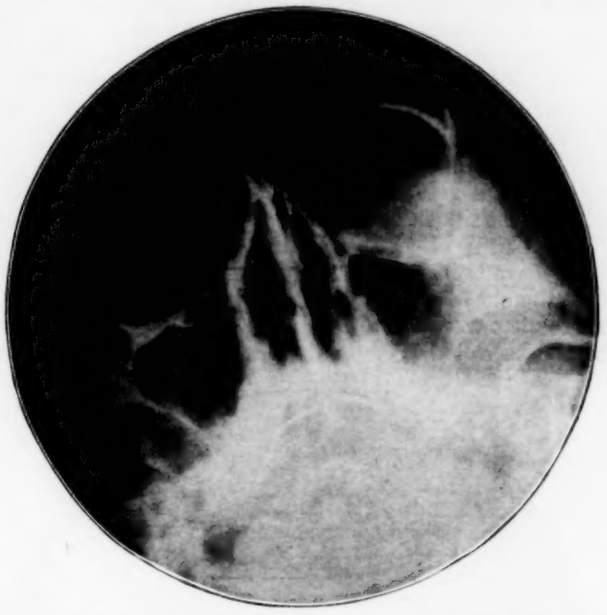

Fig. 4 (case 4).—Examination by roentgenologist was pronounced negative, but inspection showed crusts, atrophy and fluid pus. The pus could be seen issuing from the region of the antral openings.

previous to the appearance of crusting and fetor. The authors expressed the belief that a much larger percentage than was deduced from the histories had had a previous purulent discharge and that there may be an important connection between the purulent discharge and the development of atrophic rhinitis. Though 75 per cent showed disease of the sinuses, only a few were referred for operation. In all the patients operated on great improvement was noted. The crusting and fetor were stopped, and the atrophic process was arrested. The authors expressed the opinion that recovery would in all probability have been hastened if more operative work had been done. Physicians interested in ozena should read this article.

In 1924 Mithoefer[11] gave the results of his operative experience in 6 cases in which he used the technic of Lautenschläger. He was highly successful, and he expressed the belief that purulent sinusitis is the cause of ozena.

Lorie and Lux,[12] who followed the technic of Halle in 18 cases, had gratifying results. They also expressed the belief that purulent sinusitis is the cause of ozena.

Here I should like briefly to epitomize the views of textbook authorities.

Reading Hajek's[13] views engenders confusion:

> Chronic empyema of the ethmoidal labyrinth is of frequent occurrence. It includes a great number of the previously described cases of disease, partly as recurring polypus formation, partly as fetid blennorrhea (ozena). In the latter type the disease of the ethmoidal labyrinth alone or in addition to an affection of the accessory sinuses relatively frequently forms the essential substratum of the disease.

10. Hoople, G. D., and Rowe, A. W.: Atrophic Rhinitis, Ann. Otol., Rhin. & Laryng. **36**: 144 (March) 1927.

11. Mithoefer, W.: Modern Treatment of Ozena, Ann. Otol., Rhin. & Laryng. **33**: 391 (June) 1924.

12. Lorie, A. J., and Lux, P.: Atrophic Rhinitis and Ozena: Halle Operation, Ann. Otol., Rhin. & Laryng. **33**: 1263 (Dec.) 1924.

13. Hajek, M.: Pathology and Treatment of the Inflammatory Diseases of the Nasal Accessory Sinuses, ed. 5, St. Louis, C. V. Mosby Company, 1926, p. 444.

That would seem to be putting the role of suppurative sinus disease in the etiology of ozena about as strongly as it could be put. In a chapter on ozena as associated with suppurative sinus disease he reported in detail 12 cases from his first book, saying that he was able to add 18 similar ones. After surgical drainage the crusting and odor disappeared and the atrophic condition was entirely relieved in most cases and was much improved in the others. He said that the secretion never comes from the atrophic membrane but comes from a circumscribed area. He argued against the reports of the early pathologists, Hartmann, Krause, Fränkel, Zuckerkandl and Harke, which denied the association of purulent sinusitis with ozena. He cited with approval the criticism of Grünwald that the investigation did not generally include all the accessory sinuses, especially the ethmoid labyrinth. He added the objection that the anatomists were not always able to determine the origin of the secretion because the secreting membrane does

Fig. 5.—Typical atrophic rhinitis in a woman aged 50, who had had crusting and odor since she could remember. Crusting and odor ceased after bilateral drainage of antrums.

not always show macroscopic changes. After forcefully stating the case for suppurative sinusitis as a cause of ozena, he apparently resented being classed as a believer in sinusitis as an etiologic factor.

Sir St. Clair Thomson [2] stated that "the cause of ozena will most often be found in a suppurating sinus" and that ozena in the wide nostril associated with a deflected septum will nearly always be found to depend on a suppurating sinus.

A. Logan Turner [14] said:

> It is now generally admitted that ozena is the terminal stage of chronic purulent rhinitis. This may arise as the result of infection of the nasal mucosa with the gonococcus, but is more commonly the sequela of measles or scarlet fever.

He reported a series of cases investigated in Edinburgh, in almost all of which the patient had had measles in childhood. He declared that a similar history is found in most cases in which there is a purulent discharge from the nose, that any paranasal sinus may be affected but that the condition is probably confined to the ethmoid air cells.

Phillips [15] quoted Lewis A. Coffin, who in 1911 presented a series of x-ray pictures of diseased sinuses in children and said that the condition shown, unless spontaneously improving, was the forerunner of atrophic rhinitis. He reported many cases in which he had cleared up the odor entirely by opening, ventilating and washing the antrum through the inferior meatus.

Ballenger [16] stated that no theories as to the cause of ozena had been definitely proved, although the one advocated by Grünwald recently and by Vieussens and Reininger at the end of the seventeenth century had rapidly grown in popularity. He said:

> Those who hold to this theory believe that all or nearly all cases of atrophic rhinitis are due to suppuration of the accessory sinuses of the nose, more especially the ethmoidal and sphenoidal. My own experience is in accord with this view. I have seen many cases cured or greatly relieved by attention to the accessory sinuses. . . . In conjunction with Dr. Joseph C. Beck I have had skiagraphs of the sinuses made in cases of atrophic rhinitis, and without exception the sinuses appear cloudy, as they do in sinusitis, i. e., their outline is poorly defined and the area of the cavities is opaque. This shows that in atrophic rhinitis the sinuses are often diseased, though it does not prove the disease of the sinus to be primary.

This, so far as I know, is the first observation supported by x-ray evidence.

Barnhill [17] said:

> In some instances it seems to be a late result of simple hype plastic rhinitis (purulent rhinitis of childhood). In others the association of the disease with persistent suppuration of one or more nasal accessory sinuses leads to the belief that nasal sinus disease is a cause.

Jackson and Coates [18] and Imperatori and Burman [19] did not mention sinus suppuration as a possible cause, though in the textbook of Jackson and Coates, Lewis A. Coffin and Harmon Smith gave strong support to this theory.

Lederer [20] said "Wide acceptance is given to the theory that the disease is the terminal stage of hypertrophic rhinitis." This is in effect the theory of Bosworth, namely that the cause of ozena is the purulent rhinitis of childhood. Lederer said also:

> Many clinicians maintain that the disease is always secondary to a purulent rhinitis in childhood, and that frequent attacks lead to it. This is especially true for the sequelae of the acute exanthemata. The theory has been advanced that diseases of the accessory sinuses are the primary cause. . . . On the other hand, many instances of accessory sinus suppuration have been observed with the nasal mucous membrane bathed in pus for a long time, with no evidence of atrophic rhinitis. When the two conditions coexist, the accessory sinus involvement may be either primary or secondary.

The views of some of the rhinologists on the Continent [21] follow:

Terracol, of Montpellier, expressed the belief that ozena is due to an infection of the accessory cavities;

14. Turner, A. L.: Diseases of the Nose, Throat and Ear, ed. 2, Baltimore, William Wood & Company, 1927.

15. Phillips, W. C.: Diseases of the Ear, Nose and Throat, ed. 7, Philadelphia, F. A. Davis Company, 1928.

16. Ballenger, W. L.: Diseases of the Nose, Throat and Ear, Philadelphia, Lea & Febiger, 1908.

17. Barnhill, J. F.: The Nose, Throat and Ear, New York, D. Appleton & Company, 1928, p. 80.

18. Jackson, C., and Coates, G. M.: The Nose, Throat and Ear and Their Diseases, Philadelphia, W. B. Saunders Company, 1929.

19. Imperatori, C. J., and Burman, H. J.: Diseases of the Nose and Throat, Philadelphia, J. B. Lippincott Company, 1939.

20. Lederer, F. L.: Diseases of the Ear, Nose and Throat, Philadelphia, F. A. Davis Company, 1938.

21. References to these authors may be found in the review by Leroux-Robert and Costiniu.

Moure, of Bordeaux, that it is most often caused by suppuration in the maxillary sinus, with suppuration in the sphenoid sinus as the next most frequent cause; Brindel, of Bordeaux, that it is the result of a local infection in the nose and sinuses, a previous purulent rhinitis, and is not the cause of sinusitis; Jacques, of Nancy, that it is a form of ethmoiditis; Mounier, of Paris, that it is an atrophy of the mucous membrane following syphilis, grip, scarlet fever, measles, diphtheria and other diseases.

The most important work on the Continent has been done by Lautenschläger [22] and Halle,[23] of Berlin. The work of both is based on their conviction that purulent sinusitis is the cause of ozena. They have expressed the opinion that ozena begins as purulent sinusitis in childhood. Lautenschläger reported operations in 400 cases of ozena, in all of which there was chronic purulent sinusitis. His technic was a radical operation on the antrums followed by displacement of the nasoantral wall toward the septum, bringing about adhesion between the nasoantral wall and the septum. The mucous membrane of the antrums was radically removed. The results were spoken of as brilliant. Halle performed a similar but less radical operation in more than 500 cases. His operation, too, was based on the thesis that purulent sinusitis is the cause of ozena. His results likewise were classed as brilliant.

REPORT OF CASES

CASE 1.—E. H., a boy aged 18 months, was brought to me on April 26, 1916 with a profuse purulent discharge from his left nostril. At the time I saw him a unilateral purulent discharge generally was taken to mean that a foreign body was in the nose. The child was given a general anesthetic, and the nostril was thoroughly searched for a foreign body. None was found. At the age of 9 years the child was brought back. His parents stated that the discharge had continued from the left side and later had appeared on the right side.

The child was most pathetic. The nostrils were filled with greenish crusts with a foul odor. The crusts could be seen in the pharynx. There was a stream of green pus running down the throat. The child was undersized and undernourished and had a sickly greenish color. The parents stated that only by the greatest effort could they induce him to take food. On transillumination both antrums were dark. A roentgenogram made by Dr. H. S. Shoulders showed both antrums densely clouded. Because of his age an intranasal operation was done on both antrums. As large an opening as possible was made under the inferior turbinate bone. Irrigation through the openings was carried out for a long period. As the discharge gradually lessened, the boy's health and appetite rapidly improved. The discharge entirely ceased, and I did not see the patient until April 13, 1936, when he came for a check-up. He had developed into a fine physical specimen with no sign of sinus trouble. The openings were still patent under the inferior turbinate bones, and irrigation was carried out through them. The fluid returned perfectly clear, and a roentgenogram by Dr. Shoulders showed all sinuses clear. The patient had become an aviator some years before and had undergone a rigid physical examination every six months. The board had seen no evidence of sinus trouble. He is now a flying instructor in the army.

CASE 2.—J. W., a boy aged 10 years, seen on Dec. 5, 1925, had had a severe attack of influenza at the age of 3 years, during the epidemic of 1918. Since that time there had been a great deal of nasal discharge. His mother said that he never used less than twenty handkerchiefs a day. He was undernourished, had no appetite and was thin, and his color was a pasty green. An inspection of his nose showed both nostrils filled with crusts and a purulent discharge. There was a foul odor. On transillumination both antrums were dark. A roentgenogram by Dr. Shoulders confirmed the diagnosis. He reported that both antrums and the ethmoid sinuses were cloudy. Because of the patient's age an intranasal operation was done on both antrums; it was performed at St. Thomas Hospital Dec. 12, 1925. After the operation there was a profuse discharge of pus from both antrums. They were irrigated through the operative openings at intervals for six months, when the discharge ceased. It did not recur. I did not see the patient again till January 1941, when I wrote him to come for a check-up for purposes of this report. He was a splendid physical specimen; he had been passed by the aviation board for service. There was no indication of sinus trouble and no discharge or crusting in the nose, and the openings under the inferior turbinate bones were still patent. I washed out the antrums through these openings, and the solution returned perfectly clear from both sides. A roentgenogram showed slight cloudiness in the right ethmoid labyrinth. There was no atrophy of the mucous membrane.

Fig. 6.—Appearance in a case of typical atrophic rhinitis. All sinuses cloudy. Crusting and odor relieved after drainage of both antrums. Irrigations still necessary because of purulent ethmoiditis and frontal sinusitis. Operation is refused.

CASE 3.—C. C., a girl aged 17, consulted me on Nov. 25, 1921. She reported that since early childhood she had had severe "catarrh," which was characterized by greenish crusts with a foul odor. Her father was a circuit rider, whose occupation necessitated frequent change of residence. She had undergone treatment from many physicians. She was thoroughly discouraged and greatly depressed over the condition, which rendered her repulsive to society. Inspection revealed that the nostrils were short and wide. There were greenish adherent crusts with a foul odor. Removal disclosed atrophy of the membrane and reduction in size of the inferior turbinate bones. Transillumination showed both antrums dark. A roentgenogram made by Dr. Shoulders showed both antrums and the ethmoid cells on both sides to be cloudy. An intranasal operation was done, large openings being made under the inferior turbinate bones. A long period of irrigation followed. The purulent discharge from the antrums, at first copious, gradually decreased and finally ceased. With cessation of the discharge crusting and odor ceased. The girl's health was restored, and she became cheerful and again took her place in society. I have not seen her for nineteen years, but her family reports her absolutely cured. She is now happily married.

CASE 4.—B. B., a girl aged 13, consulted me Jan. 22, 1931. She had had influenza during the 1918 epidemic, when she was

22. Lautenschläger: Madrid report; also quoted from Mithoefer, W.: Ann. Otol., Rhin. & Laryng. **33**: 391 (June) 1924.

23. Halle, quoted from Lorie, A. J., and Lux, P.: Ann. Otol., Rhin. & Laryng. **33**: 1263 (Dec.) 1924.

a few months old, almost losing her life. Since then she had had a profuse purulent discharge from both nostrils, characterized by crusts and odor. Inspection showed the nostrils to be wide and short and the mucous membrane to be covered with greenish crusts with a foul odor. Removal of the crusts disclosed that the membrane was atrophic, with the inferior turbinate bones greatly reduced in size. The girl was partially deaf, hearing a loud voice with the left ear and the ticking of a watch on contact with the right. The antrums looked cloudy under transillumination. A roentgenogram of the sinuses was made by Dr. Shoulders, who reported that all the sinuses were normal. As fluid pus could be seen issuing from the natural openings, drainage of the antrums was advised. In many cases of frank purulent sinusitis the roentgenographic report is negative. A large opening was made under each inferior turbinate bone, and the antrums were washed out through the openings. The drainage from the antrums was profuse, and treatment was carried out for a long time before it stopped. With the cessation of drainage, crusting and odor ceased. The rehabilitation of the child was remarkable. Whereas she had been morose, irritable and solitary, she sought

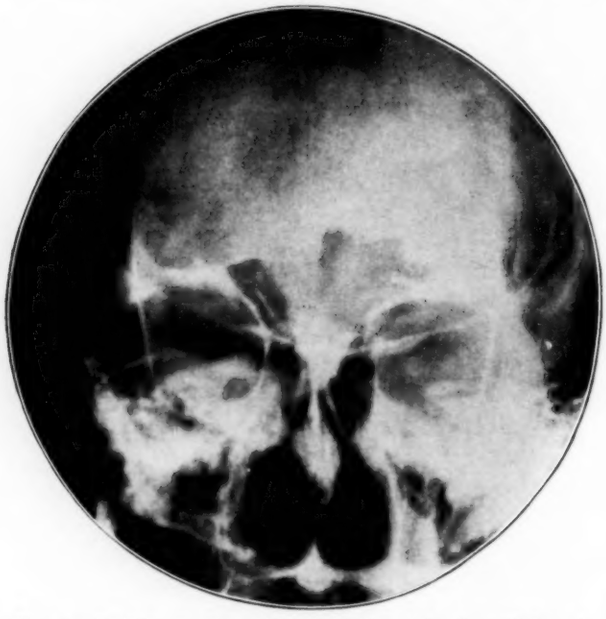

Fig. 7.—Typical atrophic rhinitis, crusting and odor existing since patient, a man aged 74, could remember. Crusting and odor ceased after bilateral antral drainage.

companionship and friends and developed into a remarkably striking and handsome young woman with many suitors. She is now happily married.

I have reported these 4 cases because the ozena started in 2 in infancy and in 2 at the age of 3 years. After a period of purulent rhinitis of childhood crusting, odor and atrophy developed in all, and in all there was severe suppurative sinusitis. In 1 scarlet fever occurred at the age of 2 years, in 1 influenza at 3 months and in 1 influenza at 3 years. I have 4 interesting adult patients, 1 aged 74, who had had crusting and odor as long as they could remember. They all showed atrophy and roomy nostrils. All had severe purulent sinusitis. After drainage, crusting and odor ceased. The atrophied membrane became pink, and the health greatly improved. These patients are interesting to me because I have been able to follow them for years and note their recovery.

CONCLUSIONS

The conclusions herein set forth are the result of a lifetime of observation of patients with ozena, together with a careful study and analysis of the observations and conclusions of the many rhinologists who have made a careful study of the disease. I believe that ozena is the end result of a chronic purulent focus. This focus may be in the nasal cavity, the accessory sinuses or the postnasal space. This is the conviction expressed by Grünwàld. To a large extent it is the conviction of Michel, who was the real pioneer in the theory of a chronic purulent focus. He confined the focus to the accessory sinuses. Loewenberg was the stoutest defender of the sinusitis theory.

The bedrock of my conviction is the brilliant observation of Bosworth that there is a purulent rhinitis of early childhood which results in ozena in from five to ten years. Bosworth had an enormous clinical experience and apparently followed his patients through the stage of purulent rhinitis to the point at which the condition developed into atrophic rhinitis. The purulent rhinitis of childhood theory has the support of a large number of physicians who have confirmed it in their experience. There is almost unanimous agreement among rhinologists who keep careful histories that the beginning of discharge dates from an attack of an exanthem, diphtheria or epidemic influenza. The next step in logical sequence is to connect the purulent discharge with purulent sinusitis resulting from this attack. An indication in this direction is the connection between purulent otitis media and scarlet fever, measles, diphtheria and epidemic influenza. In practically every case complicated by suppuration of the middle ear a roentgenogram disclosed purulent sinusitis. The most brilliant work in confirmation of this condition was done by Gordon Hoople and his associates in a painstaking study of 384 cases of scarlet fever in children. Clinical, pediatric and roentgen examination disclosed that 91 per cent of the children had sinus involvement. This correlation has been confirmed by many other investigators, notably the late Dr. Manges, professor of roentgenology at Jefferson Medical College. I called his attention to the connection in 1924. Thereafter he roentgenographed the sinuses of every patient with mastoiditis brought to him for a roentgenogram of the mastoid. In no case did he fail to find purulent sinusitis. I think that physicians are now practically agreed that purulent otitis media following scarlet fever, measles, diphtheria and epidemic influenza is due to purulent sinusitis and that the purulent sinusitis is secondary to these diseases. I think that the clinical picture of the origin of purulent sinusitis in childhood, the progress of the sinusitis and the stage at which it becomes atrophic rhinitis is clear.

A stumbling block to many authorities is the fact that ozena appears five times as often among females as among males. There are, of course, as many cases of purulent sinusitis in boys as in girls. If the purulent sinusitis is the cause, why are there not as many cases of ozena in males as in females? This is something about which one must theorize. My theory depends on the difference in habits of boys and girls. Boys are outdoor animals. They love fresh air and outdoor games that call for violent exercise and cause elevation of the blood pressure. The turbinal venous sinuses are filled with blood in a physiologic response to the increased temperature and the exercise and a ravenous appetite is created. On the other hand, the girls of former generations lived an indoor life. They liked to play with dolls and did nothing to raise their blood pressure. They lived in too dry an atmosphere, and their lack of fresh air and exercise reacted on their appetites so that they did not get the proper amount of nourishing food. All these things would make them

a prey to the deficiency diseases which some physicians think are at the root of atrophic rhinitis. There are perhaps more turned up noses among girls than among boys. The turned up nose admits too much air and causes a drying of the purulent secretion into crusts. The drying makes the expulsion of the crusts more difficult and favors a perfect culture medium for the implantation of the coccobacillus and all the other bacilli found in the secretions of patients with ozena. It seems to be the implantation of these bacilli which gives rise to the characteristic crusting and odor of the disease. It is likewise probable that it is the implantation of the bacilli which brings about the atrophy of the membrane. But when the source of the purulent secretion is cut off, odor and crusting cease.

The incidence of ozena has greatly decreased. There may be several factors at work. First, the population is receiving much more intelligent treatment of disorders of the nose and throat. Diseased tonsils and adenoids are being removed, and purulent sinusitis is being attended to. Second, much more intelligence is being shown in feeding children, which lessens the incidence of deficiency diseases. Third, children lead a much more athletic, open air life than they did formerly. This applies especially to girls.

When I was on the house staff of the Manhattan Eye and Ear Hospital, from 1896 to 1899, half of the work in the nose, throat and ear clinic consisted of removing the foul crusts from the noses of patients with atrophic rhinitis. Where are such patients now? A falling off is noted in private practice also.

I should like to say a final word to rhinologists who do not believe that a purulent focus is the cause of atrophic rhinitis. When one takes into account the enormous number of patients who have been freed from their disgusting affliction by surgical drainage, why should not every patient with atrophic rhinitis be given the benefit of a careful search for such a focus? The fact that a purulent focus cannot always be found does not mean that such a focus is never the cause. Every patient should be given the benefit of a most painstaking investigation in an effort to locate the cause of the disease. My firm conviction is that ozena is a disease of children just as much as scarlet fever, measles, diphtheria and the exanthems and is inextricably bound up with them. When one can dispose of the purulent focus one can dispose of the crusts and fetor and let the unfortunate victim of ozena resume his place in society.

ABSTRACT OF DISCUSSION

DR. JOSEPH C. BECK, Chicago: The paper of Dr. Cullom is a masterpiece on the history of this disease. Dr. Cullom inquires "Why is it that we do not see more atrophic rhinitis?" He should have followed with the answer by saying "We now have real pediatricians and pathologists who have investigated further than our masters." A recent paper presented before this section by Ruskin of New York showed by means of histopathologic pictures the changes found in genuine ozena and also prognosticated from the vascular basis why this atrophic rhinitis takes place in some persons and not in others, but his studies did not advance the therapy of the condition. Dr. Cullom says in a note to me "Let's stop pussyfooting and call this disease a secondary sinus condition." I believe sinus disease has a great deal to do with it, yet the last word has not been spoken on what was known to the old masters as genuine ozena. Dr. Cullom asks in his paper "Why does this occur more frequently in females?" I am sure you all have seen these facial expressions in the genuine ozena cases from childhood on. There is no doubt something else underlying the cause besides just sinus disease. My contribution to the subject many years ago referred to by Dr. Cullom was that the sinuses were involved, but I didn't say that the cause was in the sinus. Today if you have ozena cases or atrophic rhinitis cases, your best bet is to attack the sinuses not radically surgically but with local treatment to the sinuses. It is practically the antrum alone that is involved. The other sinuses are but little involved. Shea, Carmody and many others have contributed papers on the effect of sinus disease not permitting the free aeration and development of the sinuses. Children with sinus disease show roentgenologically that they do not become pneumatosized as well as those that do not have infected sinuses.

DR. J. MILTON ROBB, Detroit: Dr. Cullom has given a detailed report of the literature as well as of a broad experience in his own practice regarding ozena. We see fewer cases of this disease both in private practice and in clinics. This is apparently true in all sections of the country and for the reasons stated by the author. It is my opinion that chronic atrophic catarrh and ozena are similar but of varying intensity. The probable sequence of events is a focus of infection in the nasal cavity, postnasal space, but chiefly in the accessory sinuses in childhood, followed, at varying periods, by a purulent rhinitis and ozena. The speed with which the condition develops, as well as its intensity, will depend on neglect of the preventive measures. Persons who develop ozena have a definite constitutional tendency to atrophic change. Atrophic rhinitis is found five times more frequently in women than in men and seems to run in families. This points to some imbalance in the endocrine makeup, which has been observed clinically and experimentally by Mortimer, Wright, Collip and others, namely that structural abnormalities about the pituitary are frequently associated with ozena. It is known also that the nasal mucous membrane undergoes cyclic change with the menstrual phenomenon which is dependent on the follicular hormone of the ovary and has long been associated with the other "sex skins" of the body. The ovary in turn is governed by the secretions of the anterior pituitary. Chronic rhinitis, then, in persons whose developmental or reparative mechanism is inadequate because of hormonal imbalance predisposes to mucosal atrophy and ozena.

DR. FLETCHER D. WOODWARD, Charlottesville, Va.: It has been recognized that sinusitis frequently follows diseases of childhood such as measles, scarlet fever and influenza, but since pediatricians and otolaryngologists now treat these cases at the time they occur, we do not see many cases of atrophic rhinitis. If these cases are neglected, a persistent sinusitis is apt to occur, which leads to ozena and arrests the growth and development of the sinuses. This may account for the short nose with the wide nares so often associated with ozena. The amount of atrophy noted in each case varies from a small area just within the vestibule to that of complete atrophy of the nasal mucosa. Many of these patients become secondarily infected with various bacilli, and then there develops ozena, which is an end result of a neglected case of childhood sinusitis. There is no reason why we should not apply old and accepted surgical procedures when infection is present in the sinuses. Dr. Coffin many years ago emphasized the relationship of atrophic rhinitis to sinus infection. Why it occurs more frequently in the female than in the male has not been explained. Dr. Andrew Eggston of New York has suggested that there is an estrogenic hormone secreted from the erectile tissue in the nose. If this is true and we have atrophy of the erectile tissue, then the application of an estrogenic hormone intranasally should be of benefit, and I feel that clinical experience verifies this assumption. The condition is largely due to neglected sinus infections. Therefore our treatment should be primarily directed at the elimination of the infection, plus the usual methods of cleansing the nose of the retained crusts and the application of an estrogenic hormone in oil to the nasal mucosa.

DR. WILLIAM S. VAN FOSSEN, Columbus, Ohio: I agree that there has been some unknown factor back of ozena which has made real progress in treatment impossible. From my experience with a limited number of cases, this factor seems

to be vitamin A deficiency. Four years ago I treated a 14 year old girl for extreme ozena. The case responded to treatment with vitamin A so well that it still appears after four years to be completely cured. Other cases under treatment have responded satisfactorily also. The method of supplying vitamin A is vitally important. I have secured no benefit from oral administration, but patients have responded in an astonishingly short time to local nasal application. I use vitamin A in (carotene A) oil and, after the nasal mucosa has been freed from crusts and mucus, completely cover it with a fine, nebulizing spray. It is also essential that treatment be given daily. There is a rapid regeneration of the epithelium, followed by a reconstruction of the submucosa. All patients under 28 years of age have had a return of the sense of smell.

DR. G. M. KOEPCKE, Minneapolis: I believe that atrophic rhinitis ozena is a local manifestation of a more general condition. The general condition is characterized by fatigue, low blood pressure, low basal rate, dry skin, dropping and dripping in the back part of the throat in early cases, and then true ozena in later cases. This I have attributed to a hypoadenia. Most of these patients have been subjected to a disease, either scarlet fever or diphtheria, or have been under a tremendous strain which has been a drain on the adrenal glands. These cases of atrophic rhinitis seem to be benefited to a great extent by the administration of adrenal medication, given by mouth as a whole desiccated gland, even though many of the laboratory technicians say that the adrenal gland will not be absorbed by the stomach. However, I have found that these cases of odor, of crusting, will disappear in approximately three weeks, and that the patients symptomatically have been greatly relieved.

DR. M. M. CULLOM, Nashville, Tenn.: I was interested in what was said about the pediatricians. They are our main reliance. The realization that scarlet fever, measles, diphtheria and epidemic influenza often leave little patients with a chronic sinusitis, and are at the bottom of a lot of their troubles, will be a great help. I was recently asked to write an editorial for the *Philadelphia Medical World*. I took for my subject "The Sinus Question." I pointed out that one of the penalties we pay for walking in the upright position is sinus disease, because it places the drainage system at the top and makes the sinuses cesspools of disease and infection. Through them we have acquired scarlet fever, measles, diphtheria and epidemic influenza. It is of the utmost importance to understand the complications and infections that follow in the train of these children's diseases. Dr. Van Fossen spoke on treatment, but the paper is on etiology. He spoke of the nose being opened up and great harm being done. The nose should not be touched at all surgically unless there is absolute indication for operation, based on x-ray and other clinical evidence of suppuration in the sinuses. You all know how difficult it is to arrive at a diagnosis in a child with ethmoiditis or sphenoiditis or even pus in the antrum. I felt that this very difficulty would account for a great many of these cases which have been declared to be free of sinus disease. The enormous number of patients who have been benefited by operation should cause us to give every patient with this disgusting disease the most careful examination, if thereby we can arrive at the cause of his trouble. A single suppurating posterior ethmoid cell or a hidden purulent sphenoid may be causing the ozena. Because we can't say positively that every case of ozena is caused by a purulent sinusitis, let us not say that no case is caused by it.

Newton's Prism Experiment.—In 1666 Isaac Newton (1642 to 1727) performed the remarkable yet simple experiment which opened the story of modern light therapy. He placed a triangular prism in a beam of sunlight, thus splitting the shaft of light into a rainbow of spectral colors. It was shown for the first time, in this manner, that white light could be broken up into its variously colored components.—Krusen, Frank H.: Physical Medicine, Philadelphia, W. B. Saunders Company, 1941.

CHRONIC APPENDICITIS

RESULTS AFTER APPENDECTOMY FOR RECURRENT PAIN IN RIGHT LOWER QUADRANT OF THE ABDOMEN

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"Chronic appendicitis" is a term which has been loosely used. It is the common observation of pathologists and surgeons that such a condition seldom exists as an entity exhibiting the usual pathologic characteristics of chronic inflammation. Most surgeons, realizing this, still operate on many patients with that diagnosis or essentially similar diagnoses (interval and recurrent appendicitis) who present a history of recurrent pain in the right lower quadrant of the abdomen. In cases of this recurrent pain prolonged clinical observation and study have usually excluded all sources of pain other than the appendix. The common assumption is that patients with this condition have intermittent attacks of acute appendicitis and that subsequent attacks are prevented by appendectomy. It has been our experience, however, that, although this is true of a small number of patients (7 of 112 in our series), the great majority have attacks which are in no way suggestive of acute appendicitis. They are usually of short duration and seldom are incapacitating. Often, furthermore, the operation is performed during an attack and a normal appendix is found.

TABLE 1.—*Results in 138 Cases of Removal of Normal Appendix for Abdominal Pain*

	Cured	Improved	Unimproved	Worse
Number	77	26	34	1
Percentage	56	18.8	24.6	0.7

A certain number of such cases are nevertheless improved or cured by operation. Attempts have been made by careful microscopic restudy of such appendixes [1] to find some minor pathologic changes to account for the improvement. Such attempts have led to the use of various terms to describe the different types of appendix encountered (chronic lymphoid appendicitis, scarring of the appendix, lymphoid hyperplasia and others). None of these reports has given convincing evidence, however, that the incidence of such "pathologic" processes is greater in appendixes removed for chronic appendicitis than it is in the appendixes of the population as a whole. Shelley [2] found definite inflammatory changes in 63 per cent of appendixes removed incidentally at an operation for some other condition, and in 71 per cent of appendixes removed for chronic appendicitis, a surprisingly close correlation. Aschoff [3] found chronic inflammatory changes in 75 to 80 per cent of appendixes examined at routine autopsy.

At the Massachusetts General Hospital most appendixes that are not acutely or subacutely inflamed are

From the Surgical Services of the Massachusetts General Hospital.

1. Fausset, C. B.: Correlation of Pathologic and Clinical Observations in Chronic Lymphoid Appendicitis, Arch. Surg. **39**: 577 (Oct.) 1939. Cherney,[13] Aschoff,[3] Shelley.[6]
2. Shelley, H. J.: Incidence of Asymptomatic Pathologic Conditions of the Appendix, Arch. Surg. **35**: 621 (Oct.) 1937.
3. Aschoff, Ludwig: Ueber chronische Appendicitis, Med. Klinik. **24**: 1660 (Oct. 26) 1928.

divided into two classes, those in which no pathologic condition can be found and those in which there is some slight evidence of inflammation, usually infiltration of eosinophilic leukocytes or lymphocytes into the muscular layer.[4] In 100 incidental appendectomies the proportion of the former to the latter was 82 to 18. In 422 cases in which appendectomy was done for symptoms presumably arising from the organ and in which the appendix was not acutely inflamed, the proportion was 77 to 23. This suggests that pathologic changes of such mild degree are insignificant and that for present purposes all such appendixes may be considered as normal.

One of the most constant sources of confusion as to what is meant by chronic appendicitis is the fact that at certain periods and in certain communities there has been a fashion for removing appendixes from patients with nervous indigestion, irritable colon and pylorospasm and even for such a definite pathologic entity as duodenal ulcer. These conditions have been thought to be initiated or perpetuated by "chronic appendicitis" which gave no other clinical signs or symptoms. The poor results of such operations have been emphasized repeatedly in the past and more recently by Alvarez.[5] Our experience with these indications for appendectomy has been only with regard to patients who have been so operated on elsewhere and have come to us still suffering from their original complaints. We consider that removal of normal appendixes for these complaints is completely unjustifiable and cannot be too strongly condemned.

Although the policy at the Massachusetts General Hospital is to be conservative about indications for operation on patients with chronic or recurrent pain in the right lower quadrant of the abdomen in whom pathologic conditions outside the appendix are ruled out, a number of uninflamed appendixes are removed from such patients each year.

In the five year period of this study 618 uninflamed appendixes were removed from patients operated on primarily for appendicitis. In these patients no pathologic condition outside the appendix was found and no procedure other than appendectomy performed. Three hundred and eighty-three of the operations were emergency procedures done with a preoperative diagnosis of acute appendicitis. The remaining 235 patients were operated on with the preoperative conviction that the appendix was not inflamed. These 235 do not include 25 patients previously treated for appendicitis with abscess who returned for a true interval appendectomy and are classified in the group with inflamed appendixes. Since the total number of inflamed appendixes (1,440 acute, 85 subacute and 25 interval) removed during the same period was 1,550, only 10.7 per cent of our operations were done for chronic appendicitis. More than half, or 124, of the 235 patients had roentgen studies made before operation, and 44 of these had two or more sets of studies done. These were undertaken with a view to excluding other causes of pain but in other respects were of no help in pointing toward the appendix as the offending organ.

4. Drs. E. A. Gall and M. DeG. Ruffin of the Department of Pathology gave assistance in reviewing microscopic sections in cases of borderline appendicitis.

5. Alvarez, W. C.: When Should One Operate for "Chronic Appendicitis"? Study of Three Hundred and Eighty-Five Cases, J. A. M. A. **114**: 1301 (April 6) 1940.

REVIEW OF THE LITERATURE

The largest series of follow-up cases that we have found in the literature is that of Shelley.[6] He reported a percentage of cures averaging 87 in 704 cases. The highest percentage of cures occurred in cases in which there was spasm of the abdominal musculature over the appendical region on examination just prior to operation. This suggests that in some of the cases there may have been more acute inflammation in the appendix than the nomenclature used would indicate. Even among the cases in which there was tenderness elsewhere than in the right lower quadrant of the abdomen the percentage of cures was 50 to 70. Other authors who have reported smaller series with favorable results

TABLE 2.—*Classification of One Hundred and Thirty-Eight Cases of Removal of Normal Appendix According to Clinical Diagnosis*

		Condition of Patient			
	Cases	Cured	Improved	Unimproved	Worse
Chronic appendicitis *					
Diagnosed preoperatively...	62	32 51.7%	14 22.6%	16 25.8%	0
Diagnosed postoperatively..	61	32 52.4%	15 24.6%	14 23.0%	0
Acute appendicitis					
Diagnosed preoperatively...	40	27 67.5%	4 10.0%	8 20.0%	1 2.5%
Diagnosed postoperatively ‡	22	11 50.0%	2 9.1%	8 36.4%	1 4.5%
Subacute and subsiding appendicitis					
Diagnosed preoperatively...	20	12 60.0%	3 15.0%	5 25.0%	0
Diagnosed postoperatively ‡	22	14 63.6%	4 18.2%	4 18.2%	0
Mesenteric adenitis					
Diagnosed preoperatively...	6	4 66.6%	1 16.6%	1 16.6%	0
Diagnosed postoperatively ‡	14	6 42.9%	3 21.4%	5 35.8%	0
Miscellaneous †					
Diagnosed preoperatively...	10	3 30.0%	4 40.0%	3 30.0%	0
Diagnosed postoperatively ‡	19	14 73.6%	2 10.5%	3 15.7%	0

* Includes such equivalent diagnoses as healed appendix, healing appendix and interval appendicitis.

† Includes such diagnoses as ruptured corpus haemorrhagicum, ovarian cyst and cases in which no diagnosis was made.

‡ Review of the records in these cases reveals that the postoperative diagnoses were not completely justified by the conditions. These cases were accordingly not excluded.

are Davis,[7] 420 cases with 76 per cent excellent and satisfactory results and 24 per cent unsatisfactory; Block,[8] 81 cases with 87 per cent complete relief or partial cure and 13 per cent unsatisfactory results, and Saltzstein,[9] 50 cases with 74 per cent relief.

Others have reported unfavorable results. Kraemer [10] had 78 patients of whom only 12 said they had been cured. Alvarez [5] found only 2 cured among 255 patients.

In the great majority of cases which these last two authors reported, no attacks of abdominal pain were

6. Shelley, H. J.: Chronic Appendicitis: Is It a Clinical Entity? Arch. Surg. **37**: 17 (July) 1938.

7. Davis, W. T.: Statistical Report of End Results in Six Hundred and Seventy-Seven Cases of Chronic Appendicitis, Bull. Moses Taylor Hosp., Scranton, Pa. **1**: 1-8 (May) 1927.

8. Block, F. B.: Chronic Appendicitis: A Study of End Results, M. J. & Rec. **134**: 448 (Nov. 4) 1931.

9. Saltzstein, H. C.: Chronic Appendicitis, Ann. Int. Med. **6**: 278 (Aug.) 1932.

10. Kraemer, M.: Chronic Appendicitis: Appendectomy in Absence of History of Acute Appendicitis or of Appendiceal Colic, Am. J. Surg. **42**: 398 (Nov.) 1938.

recorded. Their evidence is important in discouraging operation for "chronic appendicitis" in all cases in which attacks of pain in the right lower quadrant of the abdomen are not present but gives little help in cases in which it is present.

TABLE 3.—*Results in Sixty-Nine Cases of Removal of Normal Appendix with Pain in the Right Lower Quadrant of the Abdomen, Symptoms of More Than One Month's Duration and Three or More Attacks*

	Cured	Improved	Unimproved	Worse
Number	40	15	13	1
Percentage	58	21.7	18.8	1.4

MATERIAL AND METHODS OF STUDY

All patients who were operated on at the Massachusetts General Hospital in the five year period from March 1934 to March 1939 and from whom uninflamed appendixes were removed were considered. Only those in whom no pathologic condition outside the appendix was found and on whom no procedure other than appendectomy was performed were selected for study. In addition, the patients who underwent incidental appendectomy at operation for some other purpose and those having an elective appendectomy following the subsidence of an appendical abscess were excluded. To each patient a letter was written requesting a follow-up interview. A history was taken and an examination of the abdomen performed on those who came in answer to the letter. Among 618 eligible patients adequate follow-up studies were procured on 138. No follow-up study was made earlier than nine months after operation. On the basis of the interview an impression was recorded as to whether the patient had been cured, improved, unimproved or made worse after the operation. The patient's statement as to the result agreed in most instances with the examiner's impression as derived from the interview. In 16 cases, however, the examiner's opinion differed from that of the patient, and because the examiner had the more objective point of view his impression was taken as final. In 4 cases the examiner's impression was more favorable than the patient's and in 12 of them less favorable.

These 138 patients were divided into classes according to their symptoms and the motives behind operation. The mortality, the postoperative morbidity and the late results were analyzed.

MORTALITY

In this series of 613 cases there was no postoperative death. No series of major operations can be prolonged indefinitely, however, without a death from some unpredictable complication. We are not justified on the basis of this study in saying that the operation carries no hazard whatever, since others have reported mortalities ranging from 0 to 2.8 per cent.[11] The mortality, then, although low, is not negligible.

MORBIDITY

Of our 138 cases complications occurred in 18. There were 4 cases of persistent postoperative fever of unknown cause, 8 cases of hematoma or infection of the wound (4 minor, 3 major and 1 not stated), 2 cases of late intestinal obstruction nine months and three years postoperatively, 3 cases of acute pharyngitis or tonsillitis and 1 case of postoperative pulmonary atelectasis. In 4 cases the follow-up interview alone revealed the complication, of which there had been no evidence before the patient's discharge. This demonstrates that statistics on complications in patients whose postoperative stay in the hospital averages about eight days are valueless without a follow-up interview. An attempt was made to estimate the morbidity from the operation by questioning the patients as to the time it took them to regain their strength after discharge from the hospital. Among the 101 patients who were able to answer this question 3 said that their strength was normal immediately on returning home, 4 said that they had never regained it, and the average time of return of strength of the rest was eight and eight-tenths weeks, with extremes of one week and one hundred and four weeks. If one makes due allowance for the inaccuracy of these figures because of individual variations in the evaluation of symptoms, the morbidity from complications and disability is considerable.

FOLLOW-UP DATA

Because of obvious difficulty in selecting from the records cases which all observers will agree are typical of chronic appendicitis the cases were studied in the following groups: first, the complete group of 138 cases without regard to symptoms; second, the cases divided into classes according to (1) the preoperative diagnosis and (2) the postoperative diagnosis, and third, a group of 69 cases in which there was recurrent pain in the right lower quadrant of the abdomen, selected because they seemed to us to be typical of "chronic appendicitis." The criteria we have established for admission of cases to the last-mentioned group are (1) pain located in the right lower quadrant of the abdomen, (2) symptoms of longer than one month's duration and (3) a total number of three or more attacks. We have analyzed the symptoms of this group as carefully as possible in order to attempt to uncover diagnostic points which may help us to decide which patients in the future are more likely than others to be cured by appendectomy.

TABLE 4.—*Effects of Sex, Length of History and Number of Attacks on Results in Sixty-Nine Cases of Appendectomy for Chronic Appendicitis*

		Condition of Patient			
	Cases	Cured	Improved	Unimproved	Worse
Sex					
Male	20	15 75.0%	4 20.0%	1 5.0%	0
Female	49	24 49.0%	11 22.4%	13 26.4%	1 2.1%
History					
Under 6 months	20	14 70.0%	5 25.0%	1 5.0%	0
Over 6 months	49	27 55.1%	9 18.4%	12 24.5%	1 2.04%
Number of attacks					
3-6 attacks	19	16 84.2%	2 10.6%	1 5.2%	0
More than 6 attacks	50	24 48.0%	13 26.0%	12 24.0%	1 2.0%

In table 1 are given the results for the whole group. It can be seen that there were 75 per cent favorable results (patients cured or improved) and 25 per cent unfavorable results (patients unimproved or in a worse condition).

11. Bettmann, H. W.: Chronic Appendicitis from the Viewpoint of an Internist, Ann. Int. Med. **2**: 509 (Dec.) 1928. McClure, R. D.: Appendicitis Chronic, Ann. Surg. **94**: 203 (Aug.) 1931. Shelley.[6] Davis.[7] Block.[8]

Table 2 contains the results for cases classified according to the surgeon's preoperative diagnosis. Parallel columns show the results when the cases are classified according to the postoperative diagnosis. The preoperative diagnosis gives a better idea of the clinical picture as presented to the surgeon, whereas the postoperative diagnosis indicates more truly the actual pathologic condition present.

In table 3 are given the results for our 69 selected cases of chronic appendicitis. The percentage of favorable results is about the same as for the whole group.

In table 4 the influence of sex, the length of the history of attacks and the number of attacks on the end results in these 69 cases is shown. A short history and few attacks give a more favorable prognosis than do their opposites. Statistical analysis of the other factors, such as the association with menstrual periods, the presence of constipation and the finding of fecaliths, bands and veils at operation, was unsatisfactory because of the inadequacy of the hospital records. Cursory study of these factors, however, confirmed the general impression that any association of pain with the menstrual periods carries a poor prognosis for cure by appendectomy. Among 11 cases in which this association was present there were only 3 in which cure was effected.

COMMENT

The significant point brought out by this study is that in three fourths of these carefully selected cases cure or improvement was effected by appendectomy. Several theoretical explanations may be offered for this fact. Two seem to us to be the most plausible: The first is that the appendix is a blind muscular tube which undergoes peristaltic activity.[12] Many things might cause intermittent spasm of this muscle and produce colic. Increased intraluminal pressure due to a temporary blocking or a kink ("appendiclausis"[13]) or increased pressure in the colon are possible agents. Certain persons have low thresholds for intestinal pain and may experience symptoms from a normal amount of activity of smooth muscle. The second theoretical explanation is one based on psychic factors. The patient and the doctor both are conscious of the danger of acute appendicitis. Commonly the patient first sees the doctor after the attack has subsided. The doctor cannot be sure whether the attack was due to acute appendicitis or not and tells the patient so, warning him to report immediately if another attack occurs. The patient becomes "appendix conscious," symptoms in the right lower quadrant of the abdomen are magnified and often he is never at ease thereafter until the appendix has been removed.

The poorer results in the group of patients with the long histories and the larger number of attacks are perhaps explained by the fact that when a patient complains of "innumerable" attacks for "years" one must be on guard for emotional or mental factors which might influence the picture. Appendectomy as a form of psychotherapy is not good treatment. It may be also that those persons with a short history or with only a few attacks were those with true digestive complaints of an obscure nature and that appendectomy was only coincidental with the spontaneous remission of symptoms.

We are at a loss to explain the difference in good results in men as opposed to women except on the basis that many women have an appendectomy performed for some gynecologic complaint which does not manifest itself in the form of a gross pathologic condition at operation.

It is proper to offer the criticism that those patients "improved" by operation may represent an unreliable group. Some symptoms were present in all of them. In most of the subdivisions recorded in the tables the percentage of cures was not much more than 50. This emphasizes that even those patients selected for this operation with extreme care often return with their original complaints.

What policy, then, is one to follow with regard to this syndrome? It seems to us that to avoid confusion we should continue to use the term "chronic appendicitis" but recognize frankly that by this we do not necessarily mean that the organ is or has been the seat of an inflammatory process. This is better than using terms which are etymologically more accurate but which are unfamiliar and may lead to confusion. Patients who present themselves with this syndrome should be observed over a period of a few weeks in order to rule out factors of emotion, constipation and menstruation and to determine whether passage of time alone will not produce a cure. Roentgen studies are usually indicated to exclude other causes of pain, and of these the intravenous urogram, the plain abdominal film and the cholecystogram are, in the order mentioned, the most informative. One must not, however, expect the radiologist to uncover any evidence which is pathognomonic of appendical disease. If improvement does not take place while the patient is under observation, the chances of cure or partial relief by appendectomy should be explained to the patient or the parents and a decision for or against operation reached.

SUMMARY AND CONCLUSIONS

1. Chronic appendicitis is a clinical entity consisting of recurrent pain in the right lower quadrant of the abdomen usually unrelated to past or present pathologic conditions in the appendix.

2. In a series of 138 cases in which an uninflamed appendix has been removed for abdominal pain (including 69 cases of typical chronic appendicitis) about three fourths of the patients experienced partial or complete relief of their preoperative symptoms, and one fourth remained unimproved or were made worse.

3. Patients with a long history and those with numerous attacks did not have such a high percentage of good end results as did those with a short history or those with few attacks.

4. Better results were achieved in men than in women.

5. The mortality from the operation is low, but the morbidity and the period of incapacity cannot be ignored.

6. The results described should be regarded as grounds for the adoption of a more conservative rather than a less conservative attitude toward operation for chronic appendicitis.

264 Beacon Street.

12. Cohn, M.: Zur Frage der Beweglichkeit und Bewegung des Wurmfortsatzes, Fortschr. a. d. Geb. d. Röntgenstrahlen **38**: 26 (July) 1928. Gunn, J. A., and Whitelocke, R. H.: Observations on the Movements of the Isolated Human Vermiform Appendix, Brit. J. Surg. **2**: 92, 1914. Kalk, H.: Eine Beobachtung über die Bewegungsvorgänge an der Appendix, Deutsche med. Wchnschr. **63**: 772 (May 14) 1937.

13. Cherney, L. S.: Appendiclausis, Surgery **7**: 900 (June) 1940.

DANGER OF INTRAVENOUS MERCURIAL INJECTIONS IN NEPHROSIS

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Mercurial diuretics have been used freely for more than a dozen years. Poll and Stern [1] have emphasized the dangers of extreme dehydration from overenthusiastic use of these drugs, and Greenwald and Jacobson [2] have presented 2 cases and Wolf [3] a third case of sudden death following an intravenous injection of a mercurial diuretic. I wish to present 2 further cases and to point out the striking similarities in all 5 cases.

Greenwald and Jacobson's first case was that of a child aged 2 years with nephrosis who was given 0.5 cc. of neptal (a mercurial diuretic [4]) intramuscularly, followed by 1 cc. intramuscularly four days later. One week later 1 cc. of neptal given intravenously caused dyspnea, cyanosis, cardiac standstill and death within one minute of injection. Their second case was that of a child aged 3 years with nephrosis who received 0.5 cc. of neptal intravenously followed by 0.5 cc. given intravenously six days later. Three days later injection of 0.5 cc. intravenously caused a convulsion, dyspnea, cyanosis and coma within two minutes and death in less than five minutes after injection.

Wolf's patient was a child aged 4 years with nephrosis who was given salyrgan intravenously in gradually increasing doses, up to 1 cc., about a week apart. Within a minute after the fifth injection the child coughed, cried and fell dead.

REPORT OF CASES

CASE 1.—R. B.,[5] a boy aged 3 years, was admitted for the first time in 1938 with a history of recurrent facial edema in the morning and dependent edema in the evening for one year. He had had persistent, severe albuminuria during this period. He presented the typical clinical picture of nephrosis. A remission occurred coincidentally with the administration of thyroid, and the patient was discharged almost edema free. He was readmitted approximately one year later with severe anasarca. At this time the level of urea nitrogen in the blood was 14 mg. per hundred cubic centimeters and the level of cholesterol 1,550 mg., and there was hypoproteinemia with a reversal of the albumin-globulin ratio, the albumin being 1.3 per cent, and the globulin 2.7 per cent. The urine "boiled solid," and the patient excreted an average of 8 Gm. of albumin a day. Because of the failure of the usual diuretics, he was given 0.5 cc. of mercupurin intravenously on August 5. This drug did not cause any appreciable diuresis. On August 6 1 cc. of mercupurin was given by vein. As soon as the needle was withdrawn the patient had a generalized convulsion with an outcry. The heart beat could not be heard, and respirations became slow and stertorous. Despite the administration of epinephrine intravenously and intracardially, the patient died about one minute after the injection. Partial necropsy revealed considerable congestion of the kidneys and typical changes of chronic lipoid nephrosis.

CASE 2.—A. S., a man aged 27, first entered the hospital in 1939 with a typical nephrotic syndrome, which he stated he had had for four months and which had been preceded by intensive antisyphilitic therapy both with arsenicals and with bismuth compounds. On medication with thyroid and urea the patient's edema cleared considerably and he was discharged, but he returned one month later with generalized anasarca and pneumococcic peritonitis. He recovered from the peritonitis after the administration of sulfapyridine and was then given three injections of 1 cc. each of esidrone [6] intravenously at six day intervals with good diuresis. He was discharged considerably improved but ignored instructions as to the limitation of fluids and salt and was readmitted one week later with a massive accumulation of edema fluid. At this time the blood contained urea nitrogen 16 mg. per hundred cubic centimeters, cholesterol 760 mg., albumin 1.8 per cent and globulin 1.9 per cent. The urine gave a 4 plus reaction for albumin, and an average of 9 Gm. of albumin was excreted daily.

The patient was given 1 cc. of esidrone intravenously with excellent diuresis. Five days later the dose was repeated. Less than a minute later, within the limits of his circulation time, the patient began to have twitchings about the mouth and stertorous breathing and went into a generalized convulsion. He became deeply cyanotic. The pupils dilated widely and did not react to light. He was comatose, and there was incontinence of urine and stool. Within a minute after the injection respirations had ceased and no cardiac sounds were audible. Artificial respiration was administered, and large doses of epinephrine, nikethamide and aminophylline were injected into the external jugular vein. After several minutes respiration began again, and the heart sounds became audible. For several hours the patient alternated between periods of coma and mania, with several episodes of projectile vomiting. Consciousness returned six hours later, but retrograde amnesia for the three hours preceding the injection was present. The patient, nine months later, is in a mild nephrotic status. No mercurial injections have been given to him since.

Molnár [7] reported a death twenty minutes after an intraperitoneal injection of mercupurin, but the patient was almost moribund with severe syphilitic aortic insufficiency, which of itself frequently causes a sudden death. In the entire literature, then, there have been only 5 cases of fatal or almost fatal reactions to intravenous injections of mercurial diuretics, and all these 5 have been associated with nephrosis.

Chastain and Mackie [8] recently were able to kill a few normal dogs with intravenous injections of mercurial diuretics, but only when seven times the maximum human therapeutic dose was given. The major effect was on the ventricle, causing changes in the T waves and the QRS complex and then ventricular fibrillation, with death about three to five minutes after the injection. Chastain and Mackie also, following one of Greenwald and Jacobson's hypotheses, attempted to produce fatal reactions in normal dogs by sensitizing them with intramuscular doses and then giving a large intravenous dose. No reaction could be obtained. This was attempted because it was conjectured that the change from the intramuscular to the intravenous route may have been the cause of sensitization and shock reported in human beings.

Mercurial diuretics are given to cardiac patients in failure in the vast majority of instances, with no reported sudden fatal reactions, although there have been cases reported in which there may have been as many as five hundred such injections. Since the only five such reactions reported occurred in patients with the nephrotic syndrome, I believe that the use of mercurial diuretics is contraindicated in nephrosis.

From the Medical Service of Dr. B. S. Oppenheimer, of Mount Sinai Hospital.

1. Poll, Daniel, and Stern, J. E.: Untoward Effects of Diuresis with Special Reference to Mercurial Diuretics, Arch. Int. Med. **58**: 1087-1094 (Dec.) 1936.

2. Greenwald, H. M., and Jacobson, Seymour: Sudden Death Due to Mercurial Diuretics, J. Pediat. **11**: 540-546 (Oct.) 1937.

3. Wolf, I. J., and Bongiorno, H. O.: Sudden Death with Salyrgan, Canad. M. A. J. **25**: 73-75 (July) 1931.

4. Hydroxy mercury propanol amido carboxy phenoxy acetic acid (Wallan).

5. From the pediatric service of Dr. Béla Schick.

6. Pyridine dicarboxy β mercuri hydroxypropylamide-theophylline (Ciba).

7. Molnár, Stephan: Plötzlicher Tod noch einer intraperitonealen Novurit-Injektion, Klin. Wchnschr. **14**: 239-240 (Feb. 16) 1935.

8. Chastain, L. L., and Mackie, G. C.: Studies on Toxicity of New Mercurial Diuretic (Sodium Salt of Pyridine-Dicarboxy-Mercuri-Hydroxy-Propyl Amide-Theophylline, South. Med. & Surg. **102**: 5-8 (Jan.) 1940.

With regard to the cause of these reactions, "speed shock" [9] does not come into consideration, since the shock dose was never more than 1 cc. and in some cases only 0.5 cc. The injection was made slowly in every instance. One can only speculate, with Wolf and with Greenwald and Jacobson, that the reaction was probably an anaphylactic one. I believe that it is connected in some way to the altered blood proteins. Anaphylaxis is further suggested by the fact that no such reactions occurred in any case with initial doses but only after at least two previous doses, which may have been the sensitizing doses preceding the shock dose.

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ACUTE INFECTIOUS GINGIVO-STOMATITIS

ETIOLOGY, EPIDEMIOLOGY AND CLINICAL PICTURE OF A COMMON DISORDER CAUSED BY THE VIRUS OF HERPES SIMPLEX

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Inflammation of the mouth is a relatively common clinical condition among children, particularly of the outpatient class. In a number of cases the stomatitis is due to some known condition such as trauma, avitaminosis, metallic poisons, thrush, certain uncommon bacterial infections (Corynebacterium diphtheriae or Neisseria gonorrheae) and that which accompanies the exanthems. However, there remains a clinically common group about the cause of which there has been considerable doubt.

Uncertainty as to the etiology of this condition has led to a variety of names, over thirty synonyms in all being applied to it. Some of these are descriptive, e. g. catarrhal, aphthous, membranous or ulcerative, while some are based on the etiology, e. g. "Vincent's" or "fusospirochetal." Although fusospirochetal organisms are frequently encountered in this disease, many authors have questioned their causal relationship. These organisms are not recoverable from all cases presenting a similar clinical appearance, while on the other hand they are recoverable from the gums of from 36 to 94 per cent of normal children.[1] Lichtenberg, Werner and Lueck [2] were unable to produce lesions in guinea pigs with these organisms, although it has been reported that they could be recovered from simple traumatic ulcers of experimental animals. Black,[1] in reviewing the problems of etiology, suggested that the fusospirochetal organisms were probably secondary invaders, the primary infectious agent being unknown but possibly a virus. Confirmation of this idea appeared to come from the observations of Dodd, Buddingh and Johnston,[3] who tested 28 cases of "gingivostomatitis" for the virus of herpes simplex and were able to recover it from the mouths in 27. The finding of this virus, while highly suggestive, did not solve the problem because the virus of herpes simplex has been recovered from the saliva of normal people.[4]

As Rivers [5] has stated, the mere finding of a virus in a certain disease does not constitute proof of its causal relationship to that disease. Strong evidence that a virus actually causes a disease in a patient and is not just a coincidental finding is to demonstrate the development of immune bodies against the virus as a result of that disease. In 1939 Burnet and Williams [6] confirmed the uniform presence of herpes simplex virus in the mouths of their patients and observed the development of antibodies against the virus in their blood. They concluded that stomatitis was a common manifestation of primary infection with herpes virus.

We studied a number of cases of stomatitis in the wards and the outpatient department of the Children's Hospital during the fall and early winter of 1940-1941. It seemed profitable (*a*) to search for the virus and the appearance of its antibody and thus establish an etiology for this condition; (*b*) to determine the clinical picture of proved primary herpetic stomatitis and thus eliminate a series of descriptive names for the disease, and (*c*) to investigate the spread of herpes virus in the families of our patients as an approach to an understanding of the epidemiology of herpes infection.

PLAN OF STUDY

Clinical Material Selected.—Thanks to the cooperation of the resident staff, we were able to see almost all cases of stomatitis at the Children's Hospital and a few at the University of Pennsylvania Hospital. These cases were studied for the presence of herpes simplex virus in the saliva and for the development of antibodies in the blood.

Method of Isolating the Virus.—Swabs taken either directly from the oral lesions in younger or from the saliva in older patients were rubbed fairly vigorously over the scarified cornea of a rabbit. Both eyes were used as a routine. In the absence of virus this procedure causes a mild irritation of the eye which usually clears in two to three days. When virus is present, the rabbit suffers a characteristic infection. From twenty-four hours up to as long as seven days after inoculation minute vesicles, visible only with magnification, occur along the lines of scarification; as a result the cornea looks hazy. In addition there is a severe generalized conjunctivitis involving also the nictitating membrane; a purulent discharge, which is bacteriologically sterile, develops in many cases. Most rabbits recover from their ocular infection except for a corneal scar of varying severity. A few develop an encephalitis eight to twelve days after corneal inoculation, characterized by hyperpyrexia, tremors, pulling of the head to one side, paralysis of the limbs and convulsions. Certain strains consistently caused an encephalitis while others did not. The virus was present in the ocular exudate of infected rabbits for as long as seven days following inoculation, as could be demonstrated by passage of the exudate onto the scarified cornea of another normal rabbit.

9. Hyman, H. T., and Hirschfeld, Samuel: Studies of Velocity and Response to Intravenous Injections, J. A. M. A. **96**: 1221-1223 (April 11) 1931.

From the Department of Pediatrics, University of Pennsylvania School of Medicine, and the Children's Hospital of Philadelphia.

1. Black, W. C.: Acute Infectious Gingivostomatitis ("Vincent's Stomatitis"), Am. J. Dis. Child. **56**: 126-158 (July) 1938.

2. Lichtenberg, H. H.; Werner, Marie, and Lueck, Esther V.: Pathogenicity of Fusiform Bacillus and Spirillum of Plaut-Vincent, J. A. M. A. **100**: 707-711 (March 11) 1933.

3. Dodd, Katharine; Buddingh, John, and Johnston, Leland: Herpetic Stomatitis, Am. J. Dis. Child. **58**: 907 (Oct.) 1939.

4. Van Rooyen, C. E., and Rhodes, A. J.: Virus Diseases in Man, London, Oxford University Press, 1940.

5. Rivers, T. M.: Viruses and Koch's Postulates, J. Bact. **33**: 1-12 (Jan.) 1937.

6. Burnet, F. M., and Williams, S. W.: Herpes Simplex: New Point of View, M. J. Australia **1**: 637-642 (April 29) 1939.

Histologic sections of the cornea, within forty-eight hours of inoculation, showed the presence of acidophilic intranuclear inclusion bodies characteristic of herpes simplex. The antigenic relationship of eight strains of virus from cases of stomatitis to known herpes simplex virus was shown by the survival of these infected rabbits on reinoculation either intraperitoneally or intracerebrally, with standard HF strain (supplied by the Rockefeller Institute, New York City). Since cage infection by way of the mouth with resulting encephalitis is known to occur,[7] and since special precautions were not taken to avoid this, we considered as carrying virus only a patient whose saliva produced a definite keratoconjunctivitis. In addition to establishing the disease in rabbits we were usually able to cause herpetic encephalitis in mice by injecting them intracerebrally with an emulsion of nictitating membrane removed from an infected rabbit's eye. Animals recovering from this infection, from various strains, resisted a test inoculation with HF strain. The virus could be recovered from saliva that had been kept at ice box temperature for as long as three days, but it had disappeared from saliva that had been kept at room temperature for nineteen hours.

Method of Testing for Development of Antibodies.—During the acute stage of the illness, venous blood was collected sterilely from the patient and allowed to clot. The serum was removed and kept in the ice box. At various times after the onset of the infection, usually three to four weeks, blood was similarly collected and treated. The tests for neutralizing antibodies were made in mice as follows:

From mouse brains infected with the HF strain of herpes virus a 10 per cent emulsion was made in nutrient broth, centrifuged and tenfold dilutions made with the same diluent. Each dilution was mixed with an equal amount of the undiluted serum to be tested. After incubation for one hour at room temperature and one to three hours at ice box temperature the mixture was inoculated intracerebrally into each of 4 mice in 0.03 cc. amounts. The mice were observed for ten days, at which time the experiment was terminated. The neutralizing power of each serum was calculated by the 50 per cent endpoint method of Reed and Muench.[8] For purposes of standardization, a known herpes immune rabbit serum was included in each test, as was a normal rabbit serum. Human serums were compared with the immune rabbit serum and graded as "strong," "moderate," "weak" or "absent" according to whether their neutralizing potency was 30 to 100 per cent or more, 10 to 30 per cent, 3 to 10 per cent or below 3 per cent of that of the immune rabbit's serum.

Bacteriologic Examinations.[9]—In the majority of the cases studied, smears and cultures of the mouth lesions or saliva were made for the isolation of fusospirochetal or other organisms.

Analysis of Data.—Thirty-three patients actually suffering from or having just recovered from acute stomatitis were studied. Twenty-six were studied for the presence of virus in the mouth; the serum of 22 of these was tested for the development of antibodies. An additional 7 patients were tested for antibody development without testing for the presence of virus in the mouth. These patients could be grouped into the following divisions according to the behavior either of their neutralizing antibodies alone or in conjunction with the presence or absence of virus in their saliva:

(a) Primary Infections.—The development of antibodies against herpes virus during convalescence from their acute stomatitis occurred in 21, and these were considered as being examples of primary herpetic stomatitis. Herpes virus was recovered from 15 of these 21 patients, not being recovered from 3 and not tested for in 3.

(b) Probable Primary Infections.—Two patients, E. Br. and S. G., were not tested until the ninth and fourteenth day of their illness respectively, at which time they both showed "strong" neutralizing antibodies in their blood. The presence of these antibodies could be explained either by the occurrence of a previous herpetic infection or by an early serologic response to this present illness. No evidence of virus was found in E. Br., and S. G. was not tested. In the absence of a history of recurrent stomatitis it is probable that these were primary infections and that serum taken earlier in this disease would have shown no antibodies. However, on the basis of the serologic data at hand it is also possible that they were cases of recurrent infection.

(c) Recurrent Infections.—This was thought to be present in two patients, C. S. and U. B. In both of these virus was demonstrated in the saliva at a time when the serum contained strong neutralizing antibodies. The former was examined three days after the onset of stomatitis but he had had herpes labialis sixteen days previously, which could account for the presence of antibodies; there was also a history of two attacks of severe ulcerative stomatitis. The latter patient had saliva and blood examined on the first day of his illness.

(d) Gingivostomatitis Apparently Not Herpetic.—Three patients were observed in this group; V. B., E. W. and A. Br. Both V. B. and E. W. showed fever and gingivitis, while V. B. showed some ulcerations of the buccal mucous membrane in addition. Virus was not tested for, but neither developed neutralizing antibodies during convalescence. A. Br. had shown ulcerations of the buccal mucous membrane during the catarrhal stage of measles, five weeks previously. At the time of examination she presented a small abraded area on her lower gum which lasted for several weeks. Virus was not tested for, but no neutralizing antibodies were detected on two occasions four weeks apart. In this instance the oral ulcerations which are occasionally seen in measles were not herpetic in origin. The cause of stomatitis in these 3 patients, although clinically somewhat similar to the primary cases described, was undetermined.

(e) Other Varieties of Stomatitis.—In order to provide additional evidence for the specificity of herpetic infection, 5 patients suffering from other clinical types of stomatitis were investigated. Two of these, E. C., aged 5 months, and J. M., 3 months, had clinical thrush, confirmed by the demonstration of Monilia albicans on smear, and no virus was isolated. No examination of their blood was made. H. E., aged 10 years, had lymphatic leukemia with a marked gingivostomatitis and oral fetor. Fusospirochetal organisms were present, but herpes virus was not isolated. His blood contained neutralizing antibodies. Although the blood was not tested until about three weeks after the onset of his stomatitis, his mouth still showed marked clinical evidence of disease; hence herpes virus might have been expected

(Continued on page 1002)

7. Goodpasture, E. W.: Pathways of Infection of Central Nervous System in Herpetic Encephalitis of Rabbits Contracted by Contact, Am. J. Path. **1**: 29-46 (Jan.) 1925.

8. Reed, L. J., and Muench, Hugo: Simple Method of Estimating Fifty per Cent Endpoints, Am. J. Hyg. **27**: 493-497 (May) 1938.

9. These examinations were made by Dr. Arthur Waltz, Director of Clinical Laboratories.

TABLE 1.—*Cases of Herpetic Stomatitis*

Patient, Age	Sex, Race	Date of Onset	History and Clinical Condition of the Mouth	Highest Temp., F.	Duration	Presence of Virus in Saliva	Presence of Antibodies: Early	Presence of Antibodies: Convalescent	Known Contact
			(a) Primary Infections						
1. E. B. 5 yrs.	♂ W	11/15/40	Complained of sore mouth; red gums; scattered "aphthous ulcers	102 rectal	10 days	— (10)‡	Absent (6)‡	Strong (30)‡	Sister 2½ mos., stomatitis 11/10 to 11/15/40
2. Mrs. B. 24 yrs.	♀ W	11/20/40	Complained of sore mouth; had ulcers "like her children"	?	10 days	+ (1)	Absent (1)	Strong (24)	Her children, E. B. and sister
3. W. B. 15 mos.	♂ N	8/23/40	Irritable 2 days; enlarged gland; "fever"; gums red and swollen; 3 ulcers on tongue	100 rectal	5 days	+ (2)	Absent (4)	Strong (26)	None
4. S. B. 11 yrs.	♂ N	11/18/40	Complained of sore throat; gums red, swollen, numerous ulcers, especially on fauces and tonsils	102 oral	10 days	+ (6)	Absent (6)	Strong (27)	None
5. L. Br. 7 yrs.	♂ N	11/11/40	Sore mouth coming on after tooth extraction; gums red and swollen; one round ulcer of lower lip	100 oral	14 days	+ (3)	Absent (3)	Strong (29)	Brothers with stomatitis, 11/6 and 11/8/40
6. R. Br. 11 yrs.	♂ N	11/ 8/40	Complained of sore gums; gums red, swollen and bleeding; no ulcers	100.4 oral	14 days	— (6)	Absent (6)	Strong (47)	Brother with stomatitis, 11/6/40; see case 22
7. V. Br. 8 yrs.	♀ N	11/11/40	Complained of sore gums; gums red, swollen; no ulcers	99 oral	9 days	— (3)	Absent (3)	Strong (39)	Same as case 5
8. W. C.§ 15 mos.	♂ W	9/ 7/40	"Chewed moth ball 3 days before onset," "sore throat," gums red and swollen; ulcers of palate, cheek and tongue; pustules about mouth	102 rectal	9 days	+ (7)	Absent (7)	Strong (133)	None
9. M. C. 2 yrs.	♀ W	9/20/40	Irritable 3 days; "ulcers" noted in mouth; gums red and swollen	101 rectal	12 days	N. T.	Absent (4)	Strong (84)	None
10. L. C. 28 mos.	♀ W	9/30/40	Fever, abdominal pain, vomiting for 1 week, then sore mouth; gums red, numerous oral ulcers including tonsils	105 rectal	16 days	+ (4)†	Absent (4)	Moderate (61)	Brother 8 yrs., stomatitis 1 week before onset
11. R. G. 6 yrs.	♂ N	10/12/40	Fever 3 days, sore throat 1 day; gums red, swollen; vesicles on palate and tongue	102.4 oral	10 days	+ (4)	Absent (4)	Strong (51)	None
12. A. G. 6 yrs.	♂ N	12/21/40	Sore mouth and fever; gums red and swollen; many ulcers	100.8 oral	11 days	+ (4)	Absent (4)	Strong (26)	Sister 2½ yrs., 12/13/40 with stomatitis; see case 23
13. H. G. 4 yrs.	♀ N	12/21/40	Sore mouth and fever; gums red and swollen; many ulcers	102 rectal	11 days	+ (4)	Absent (4)	Strong (26)	Sister, case 23
14. R. I. 11 yrs.	♂ W	9/ 3/40	Headache, malaise, fever; gums red and swollen; many ulcers, including pharynx	104 oral	16 days	+ (3)	Absent (3)	Strong (36)	Brother 4 yrs., stomatitis 3 days before, sister 14 yrs. repeated "cold sores"
15. P. J. 8 yrs.	♀ N	9/19/40	Sore throat; "follicular tonsillitis"; no oral ulcers noted	103 oral	7 days	N. T.	Absent (8)	Strong (78)	None
16. H. J. 2½ yrs.	♂ N	9/22/40	Sore mouth; urinary frequency; gums red and swollen; numerous ulcers	99 rectal	10 days	+ (5; 14)	Absent (5)	Strong (52)	Sister, case 15
17. J. M. 9 yrs.	♀ N	10/ 1/40	Sore throat 5 days; "fever"; gums red and swollen; many ulcers, especially tonsils and pharynx	101.2 oral	11 days	+ (8)	Absent (8)	Strong (67)	None
18. A. P. 2½ yrs.	♀ W	9/29/40	Sore mouth 6 days; fever 2 days; gums red and swollen, numerous ulcers	99 rectal	16 days	N. T.	Weak (10)	Strong (18)	None
19. R. P. 12 mos.	♂ W	8/31/40	Refused food 2 days, vomiting 1 day; gums red and swollen; numerous ulcers	102.4 rectal	14 days	+ (6)	Absent (6)	Strong (26)	None
20. S. S. 3½ yrs.	♀ W	11/ 1/40	Sore mouth 5 days; gums red and swollen; numerous ulcers; impetigo of face	103 rectal	11 days	+ (7)	Weak (7)	Strong (54)	None
21. E. W. 4 yrs.	♀ W	8/18/40	"Lip scratched by dog"; sore mouth, fever, gums red and swollen; numeorus ulcers	103 rectal	11 days	+ (4)	Absent (7)	Moderate (27)	None
			(b) Probable Primary Infection						
22. E. Br. 10 yrs.	♂ N	11/ 6/40	Sent home from school, "trench mouth"; gums spongy; bleed easily, no ulcers	98.6 oral	14 days	— (8)	Strong (8)	Strong (43)	None (see cases 5, 6 and 7)
23. S. G. 2½ yrs.	♀ N	12/13/40	Fever; urinary frequency 5 days then sore mouth; gums red and swollen; many ulcers	101.8 rectal	14 days	N. T.	Strong (14)	Strong (42)	None (see cases 12 and 13)
			(c) Recurrent Infections						
24. U. B. 10 yrs.	♂ N	11/ 2/40	Complained of soreness under tongue; small vesicles and ulcers on palate; gums slightly reddened	98 oral	13 days	+ (1; 13)	Strong (1)	N. T.	None
25. C. S.¶ 11 yrs.	♂ W	2/16/40	Two attacks of stomatitis in past year; herpes of lips for 2 weeks, then sore mouth; gums red and swollen; scattered ulcers and occasional vesicles	98 oral	?	+ (4)*	Strong (4)	N. T.	None

* Seventeen days after herpes labialis.
† After onset of stomatitis.
‡ Numbers in parentheses indicate days after onset.
§ Case referred by Dr. W. E. Nelson, Temple University Hospital.
¶ Case referred by Dr. H. L. Davis, Trenton, N. J.
N. T., not tested,

(Continued from page 1000)

still to be present if it had been the causative agent. It seems more reasonable to suppose that his antibodies were the result of some previous herpetic infection. G. T., aged 8 years, had a gingivitis associated with extensive dental caries. No virus was isolated. His serum did not contain immune bodies against herpes although studied twenty-three days after the condition of the mouth was first noted, indicating that herpes virus was not etiologically involved in this case. F. H., aged 3 months, was an infant with a prolonged and finally fatal digestive upset, who developed a stomatitis on the basis of what was considered avitaminosis. No virus was isolated.

CLINICAL CHARACTERISTICS OF PRIMARY HERPETIC STOMATITIS

Analysis of these cases indicates that there are 21 on which a clinical picture of the disease can be based. It will be seen that this picture closely resembles the description given by Black [1] of acute infectious gingivostomatitis, the etiology of which was at that time unknown. This disease appears to be an acute systemic infection characterized by fever, irritability, soreness of the mouth, red swollen gums, oral fetor and regional lymphadenopathy. As with other infections, the severity of the disease varies in different patients.

TABLE 2.—*Bacteriologic Data in Primary Herpetic Stomatitis*

Number of Cases of Stomatitis	Number Tested by Smear	Vincent's Organisms Present	Vincent's Organisms Absent	Number Tested by Culture	Normal Flora	Hemolytic Streptococci
21	13	8	5	9	7	2

Age, Sex, Race Incidence.—The ages ranged from 12 months to 12 years; in addition there was 1 adult of 24 years. Forty per cent of the cases occurred under 3 years of age, 70 per cent under 6 years of age. The sex ratio was almost exactly equal, and the racial incidence was almost in direct proportion to the ratio of white persons and Negroes attending the Children's Hospital.

Nutrition.—No consistent alteration of nutritional state from the normal was noted. Inquiry was made into the dietary of many of these patients, and detailed dietary surveys were made in some. No specific nutritional deficiency could be established.

Symptomatology.—Of the 21 cases, the onset was insidious in 7, the child being ill for two to four days before the mother was aware of the location of the trouble. In the remaining 14 the mother soon realized that there was some trouble in the mouth. In 5 cases an upper respiratory infection coincided with the onset of the stomatitis. The older children were irritable, fretful and lacked their usual interest in play, while the infants would cry for no apparent reason, refuse to eat, and drool. Within the next day or two the articulate children would complain of a sore mouth, perhaps with pain on swallowing, and refuse solid food. The younger children were generally miserable, refusing food and sometimes even fluids. Within two to six days this phase of local pain would disappear and the child would then resume his dietary gratefully.

Physical Findings.—The constitutional reaction varied in degree with the severity of the infection. In some, dehydration and acidosis complicated the clinical evaluation of the systemic illness. Fever was present in all but 3 patients, rectal temperatures ranging between 99 F. and 105 F., with an average height of 101 F. and a duration of two to three days. Some of the children had fever for two to three days during the prodromal period and became afebrile at the time of the oral eruption. In all 21 cases there was definite involvement of the gums; in most of them the gums were generally swollen, some almost covering the teeth, and many bled easily; a few mild cases showed only a bright red line along the dental margin. In early cases small pinhead sized vesicles could be seen occasionally, but these soon ruptured, leaving round or irregular ovoid yellowish white superficial ulcers with a surrounding red halo. Such ulcers were present in 18 of the patients, being sparse in some and innumerable in others. No portion of the oral lining was immune, although the tongue and buccal mucosae were most frequently involved. The pharynx and soft palate were involved in 5 cases, and in these sore throat was the first complaint in 4. Three of our patients had no visible ulcers. Regional lymphadenopathy was present in 18 patients, the submaxillary nodes varying from hazel-nut to walnut size. This sign appeared very early in the disease, before the secondary infection was marked, and remained for as long as four to five weeks after the mouth was healed. Oral fetor was noted in all.

Complications.—In 3 of the children, each under 2½ years of age, the degree of dehydration and acidosis warranted administration of parenteral fluid. There were 3 cases of impetigo of the face, probably infected herpetic lesions, and 1 case of paronychia in a child who sucked his thumb.

Treatment and Course.—These patients were routinely treated locally with 1 per cent aqueous methyl rosaniline (gentian violet). Only 1 patient received 1 or 2 doses of chromium trioxide. Under routine treatment of this sort, the duration of visible signs in the mouth varied between six and sixteen days, averaging eleven days. The ulcerations usually healed in five to six days after their appearance. Symptomatic improvement, as we have already stated, occurs before local lesions disappear. The swelling of the gums and the regional lymphadenopathy, which were the first to appear, were the last to go. This course of events corresponds closely to that described by Lichtenberg and his co-workers,[2] who refrained from using any local treatment in a clinically similar group of cases. The disease then appears to be self limited, and conclusions as to the benefits of various therapeutic agents must be based on this knowledge.

CLINICAL FEATURES OF RECURRENT HERPETIC STOMATITIS

The 2 cases of recurrent herpetic stomatitis presented in general a picture similar to the one described. In U. B. the ulceration was mild and disappeared quite quickly; there were no general symptoms. In C. S. an extensive ulceration was present throughout the mouth, with consequent pain on eating, but systemic symptoms were mild.

BACTERIOLOGY

Table 2 gives the result of the bacteriologic investigation of those patients who had suffered from "herpetic stomatitis." It will be seen that, although fusospirochetal organisms are found most frequently, there is no uniformity in the bacteriologic findings.

EPIDEMIOLOGY

Familial Incidence.—It is interesting that most workers on this particular type of stomatitis, which may now be designated as primary herpetic stomatitis, have suggested that family epidemics are uncommon.[10] Black [1] found that only 10 per cent of his patients had a history of exposure to patients with stomatitis and pointed out that other children were in contact with patients and did not contract the disease. In our series of 21 cases of primary herpetic stomatitis there was a history of contact in 10, or almost 50 per cent. This would indicate that in a susceptible population the disease is highly contagious. In other studies no distinction has been made between children who have previously been infected and those who have not. The difference of opinion as to the contagiousness of this disease would therefore be due to a basic difference in the population at risk.

Table 3 summarizes the sequence of events in three family epidemics. It is to be noted that the first patient in each family was not seen until late in the disease, when the lesions were almost or quite healed. For this reason the saliva was found free of virus or was not tested. The disease seemed to spread first to the child closest in age to the original patient, as would be expected in a contact infection. In one family the mother, having escaped the infection in youth, was the last to get a primary herpetic stomatitis.

TABLE 3.—*Three Family Epidemics*

Family	Patient	Age	Date of Onset	Clinical Stomatitis	Virus in Saliva	Date	Neutralizing Antibodies			
							Acute	Date	Convalescent	Date
Brown	E. B.	10 yrs.	11/ 6/40	Gingivitis	Negative	11/13/40	Strong	11/13/40	Moderate	12/19/40
	R. B.	11 yrs.	11/ 8/40	Gingivitis	Negative	11/13/40	Absent	11/13/40	Strong	12/19/40
	L. B.	7 yrs.	11/11/40	Gingivitis and ulcers	Present	11/13/40	Absent	11/13/40	Strong	12/19/40
	V. B.	8 yrs.	11/11/40	Gingivitis	Negative	11/13/40	Absent	11/13/40	Moderate	12/19/40
	C. B.	3½ yrs.	11/17/40	Gingivitis and ulcers	N. T.	.....	Absent	11/20/40	N. T.	.....
	Lo. B.*.....	5½ yrs.	11/24/40	Mild sore mouth	N. T.	.....	N. T.	.....	N. T.	.....
	Mr. B. (father)	36 yrs.	.....	No disease	Negative	11/13/40	Strong	11/13/40	Strong	11/13/40
Gardner	S. G.	2½ yrs.	12/13/40	Gingivitis and ulcers	N. T.	.....	Strong	12/26/40	Strong	1/15/41
	A. G.	6½ yrs.	12/21/40	Gingivitis and ulcers	Positive	12/23/40	Absent	12/23/40	Strong	1/15/41
	H. G.	4 yrs.	12/21/40	Gingivitis and ulcers	Positive	12/23/40	Absent	12/23/40	Strong	1/15/41
	Mrs. G.	30 yrs.	.....	No disease	Negative	1/15/41	Moderate	12/23/40	Strong	1/15/41
Berger	S. B.	20 mos.	11/10/40	"Mild stomatitis"	N. T.	.....	N. T.	.....	Strong	12/11/40
	E. B.	5 yrs.	11/15/40	Gingivitis and ulcers	Negative	11/24/40	Absent	11/20/40	Strong	12/14/40
	Mrs. B.	24 yrs.	11/20/40	"Severe stomatitis"	Present	11/20/40	Absent	11/20/40	Strong	12/14/40

* History from mother, not seen in clinic after 11/20/40, when she had no lesions.

Incubation.—From those families studied, it would appear that the incubation period of herpes simplex can vary between three and nine days. Owing to the continuous exposure that occurred in most instances, it is possible that it is longer than this in some cases.

Focus of Virus.—When no contact case of stomatitis is found, as was usual in the first case in each family, it must be assumed that the susceptible patient gets infection from some other source. Two possible sources come to mind: one a contact suffering from some other manifestation of herpes, such as herpes labialis, in which case infection might be received from vesicle contents or the saliva; the other a contact carrying the virus in the saliva without clinical manifestation of herpes.

That the first may well have been a factor in some of our cases is indicated by the history of recurrent attacks of herpes labialis in other members of the family, although direct contact with such a case was not established. It is known that the saliva of patients with recurrent labial herpes may contain herpes virus during the attack and even between the attacks.[4] We were able to demonstrate virus in the saliva during an attack of recurrent herpes labialis in a healthy adult. We also demonstrated virus in the saliva of a boy of 4 years during an attack of herpes labialis accompanying pneumonia. Care was taken to avoid contact between the saliva tested and the contents of the herpetic vesicles. Both of these patients carried "strong" neutralizing antibodies in their blood at the time of testing their saliva, indicating that these patients had suffered from previous herpetic infection. It is interesting that Parsons,[11] in his study of stomatitis in childhood, noted that in a number of patients there had been contact with cases of herpes labialis. In connection with the second possibility (healthy carriers) we have made some investigations concerning two aspects. In the first place, it seemed possible that a patient who had recovered from stomatitis might carry the virus in his saliva for a certain length of time after all clinical evidence of the disease had disappeared. The saliva of 5 such patients was tested for virus. In 2 patients, thirteen and fourteen days after onset, when the mouth was entirely healed, virus was demonstrable, while in a third who had clinically recovered no virus was found at ten days. The fourth patient was tested two and one-half months after a clinically typical attack of herpetic stomatitis, and no evidence of virus was found. The fifth continued to show virus in his saliva on five occasions up to seven weeks after the beginning of his illness. When tested at ten weeks and twenty weeks no virus was demonstrable, but it was present again at twenty-two weeks. It seems, therefore, that occasionally a patient who has recovered can become a carrier of the virus, temporarily at least.

In the second place, if there is a focus among adults without herpetic lesions the most probable contact for

10. Dodd, Buddingh and Johnston.[3] Burnet and Williams.[6]

11. Parsons, C. G.: Stomatitis in Childhood, Arch. Dis. Childhood **15**: 43-54 (March) 1940.

a child would be one of the parents, particularly the mother. To investigate this we searched for virus in the saliva of thirteen parents whose children had or had had stomatitis. Of these thirteen parents, nine were mothers and four were fathers. In none of the fathers was evidence of virus found on the single occasion on which each was tested. Of the nine mothers, seven were tested on a single occasion, and no evidence of virus was found in any of them. In each of the seven women, blood antibodies were demonstrable as "strong" or "moderate," indicating a previous infection with the herpes virus. The other two mothers, who also had "strong" neutralizing antibodies in their blood, were examined more than once. One of the mothers was examined on two occasions, once in an intermenstrual period and once six days later, at the time when flow was expected. The saliva on the first occasion had no virus, but the second one did. Another mother was examined on three occasions, once eleven days after onset of the menstrual period, once four days after onset, which also happened to be eleven days after an attack of labial herpes, and once at a time which in retrospect was about the time of a period. In the intermenstrual examination no virus could be demonstrated in the saliva, although virus was easily demonstrated on the other two occasions. From this small number of observations it seems that virus may appear in the saliva of an adult particularly during the menstrual period, a time when recurrent attacks of herpes of the skin are known to occur. Thus without any evidence of oral involvement a mother may possibly provide a focus of infection for her susceptible children.

Mechanism of Infection.—No contribution as to the mechanism of infection arose out of our study. Trauma coincided with the onset of the stomatitis in 2 cases, 1 a tooth extraction and another a scratch by a dog. An accompanying upper respiratory infection was present in 5 cases. Either of these may have been a factor in lowering resistance, but in the majority there was no such incident and the disease occurred spontaneously. No evidence of gross dietary deficiency as a factor of lowered resistance was noted.

COMMENT

The work just presented confirms the conclusions arrived at previously by Black [1] on clinical and by Dodd, Buddingh and Johnston [3] and Burnet and Williams [6] on etiologic grounds that the commonest type of stomatitis in children above 1 year of age is an etiologic entity. The relative insusceptibility of very young infants to this variety of oral disease is interesting and is now being investigated. Since there seems now to be little doubt that this stomatitis is the main clinical manifestation of primary infection with the virus of herpes simplex, a rearrangement of the usual classification of stomatitis is perhaps indicated. The descriptive terms "catarrhal," "aphthous," "ulcerative" and "membranous" can now be seen to apply to different degrees of severity of this herpetic infection. We have seen examples of each of these types among the group of cases studied. Such terms can then be dispensed with and stomatitis classified etiologically.

There is a type of stomatitis already known as "herpetic stomatitis," which is described as a vesicular stomatitis with slight if any constitutional symptoms. In suggesting that the term herpetic stomatitis be applied to the common gingivostomatitis discussed in this paper, we feel that it is important to subdivide herpetic stomatitis into two groups, primary and recurrent. The primary disease is the common stomatitis of young children and is usually accompanied by considerable constitutional symptoms which do not always parallel the severity of the oral lesions. This occurs in people who have not previously been infected with the herpes virus. The recurrent disease may occur at any age, after a primary infection with herpes, and is analogous to recurrent herpes of the lips and elsewhere. The local lesion may be severe, but as a rule the constitutional symptoms are mild if present at all. This recurrent variety is that which resembles the descriptions at present given in the textbooks for "herpetic stomatitis."

Although this classification would include the great majority of cases of stomatitis at present without etiologic grouping, there will certainly be cases which do not fall into this group and must still be classed as of unknown etiology. We think it is important to divorce the terms "ulcerative" and "Vincent's," which have long lived together synonymously. If there are cases in which the fusospirochetal organisms are of true etiologic significance, they can be included in the group that now includes other bacteriologically induced stomatitis, e. g., pneumococcic, gonococcic. Other clinical varieties of stomatitis may well remain in their present classification.

Apart from the importance of the conception of a primary herpetic infection in relation to stomatitis, it is of interest to speculate on two other conditions: herpetic fever and trench mouth. The former has been the subject of a number of reports in the last decade.[12] These cases have all occurred in people above the age group commonly affected by primary herpetic stomatitis. It is conceivable that they represent a primary herpetic infection in older people who have escaped a childhood infection. It will certainly be important to investigate this possibility serologically in such cases as are encountered in the future. Trench mouth is generally considered to be a very contagious disease for which the fusospirochetal group of organisms are responsible. In light of the clinically similar stomatitis of childhood, in which these organisms appear to be only of secondary importance, an investigation for herpes infection might be illuminating.

As has been stated by others, the host-parasite relationship between herpes virus and man is apparently that of an almost perfect symbiosis, similar to that existing between B virus and the Macacus rhesus monkey and pseudo rabies and the hog.[6] It is interesting to note that these three viruses have a partial immunologic relationship.[13]

The adopted host of the herpes virus shows clinical evidence of infection only during the time of the initial invasion by the virus, often in the form of the stomatitis just described, and at intervals in the form of a crop of herpetic vesicles or recurrent herpetic stomatitis, when "host resistance" is lowered by fever, trauma

12. Long, P. H.: Herpetic Pharyngitis and Stomatitis: Report of Three Cases, J. Clin. Investigation **12**: 1119-1125 (Nov.) 1933. Youmans, J. B.: Herpetic Fever with Stomatitis: Report and Discussion of Case in Which Virus Was Isolated, South. M. J. **25**: 228-233 (March) 1932. Levine, H. D.; Hoerr, S. O., and Allanson, J. C.: Vesicular Pharyngitis and Stomatitis: Unusual Epidemic of Possible Herpetic Origin, J. A. M. A. **112**: 2020-2022 (May 20) 1939.

13. Sabin, A. B.: Studies on B Virus: Immunological Identity of Virus Isolated from Human Case of Ascending Myelitis Associated with Visceral Necrosis, Brit. J. Exper. Path. **15**: 248-268 (Aug.) 1934.

or the like. Whether subclinical infection occurs is unknown. Rarely more extensive damage to the host may be brought about by the virus, as in the 4 weeks old infant who died of encephalitis described by Smith, Lennette and Reames.[14] There are no data presented to indicate whether or not this was the manifestation of a primary infection. There is no unanimity of opinion in favor of this virus causing encephalitis lethargica A (von Economo's disease), as was once held.

In the normal course of events the parasite establishes itself widely in the population, since 65 to 90 per cent of adults have herpes neutralizing substances in their blood.[15] The period of invasion must coincide with childhood, since Weyer [16] found only 14 per cent of children under 5 years carrying antibodies, while Burnet and Williams [6] found no antibodies in the blood of 31 out of 42 infants between 6 and 24 months of age. Since this is the period during which stomatitis occurs in its greatest frequency, it would seem that stomatitis was a common manifestation of that invasion. Whether at that time the virus is spread widely through the body by way of the blood stream is a point that deserves study, since there is great diversity of opinion as to whether herpes virus can ever be found in the blood.[4] Once an individual has been infected with the virus, that individual is liable to become a carrier of the virus, although at the same time having a high titer of immune bodies in the blood. Recurrences of the infection, as previously stated, tend to occur in this group of people.

Those not subject to recurrent herpetic infections are the ones who do not show serum antibodies against herpes. Whether this is a peculiar individual resistance or a fortunate avoidance of intimate exposure is uncertain. However, one of our patients, Mrs. B., demonstrates that such an adult can become infected in the presence of intimate enough exposure. An answer to some of these problems may be found by a closer study of this virus in connection with the susceptible population of early childhood.

SUMMARY

1. The etiology of "acute infectious gingivostomatitis" of childhood is clarified by the isolation of the virus of herpes simplex from the mouths of patients and by the development of herpes neutralizing antibodies in their blood during convalescence.

2. The clinical picture of an acute systemic infection characterized by fever, irritability, soreness of the mouth, red swollen gums, oral fetor and regional lymphadenopathy is indicative of primary herpetic stomatitis.

3. Herpetic stomatitis occurs in two forms: primary and recurrent. The latter is not a systemic infection.

4. Infection spreads readily through a susceptible population. Evidence suggests possible sources of endemic foci with special reference to mothers.

14. Smith, M. G.; Lennette, E. H., and Reames, H. R.: Isolation of the Virus of Herpes Simplex and the Demonstration of Intranuclear Inclusions in a Case of Acute Encephalitis, Am. J. Path. **17:** 55-69 (Jan.) 1941.

15. Andrewes, C. H., and Carmichael, E. A.: Note on Presence of Antibodies to Herpes Virus in Post-Encephalitic and Other Human Sera, Lancet **1:** 857-858 (April 19) 1930.

16. Weyer, E. R.: Herpes Antiviral Substance: Distribution in Various Age Groups and Apparent Absence in Individuals Susceptible to Poliomyelitis, Proc. Soc. Exper. Biol. & Med. **30:** 309-314 (Dec.) 1932.

THE GASTRIC MUCOSA OF CHRONIC ALCOHOLIC ADDICTS

A GASTROSCOPIC STUDY

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The part that alcohol plays in producing acute gastritis has been known since 1833, when William Beaumont [1] first described the "erythema and aphthous patches" and the mucopurulent exudates with blood-tinged red mucus that appeared in St. Martin's stomach after an alcoholic debauch. These observations were confirmed later by Saito,[2] who instilled 50 per cent alcohol into the Pavlov pouch of a dog and observed the mucus and the inflammatory changes which resulted. Henning,[3] Thomsen [4] and Ostrouch [5] described the microscopic structural changes which alcohol produced in the gastric epithelium of animals. Ebstein [6] produced acute alcoholic gastritis in dogs and observed congestion, edema, hemorrhages and erosions of the mucosa. He found microscopic pathologic changes only in the chief cells of the gastric glands. Faber and Lange [7] concluded from their pathologic studies that alcohol is an important factor in producing acute gastritis.

That the use of alcohol over a long period can produce chronic gastritis, however, has not been demonstrated conclusively. Beazell and Ivy [8] have noted that "although alcoholism has been acknowledged generally to cause chronic gastritis, decisive evidence is still lacking." Eusterman and Balfour [9] expressed the belief that "this subject cannot be discussed with any degree of assurance."

There are two conflicting schools of thought concerning the effect of chronic alcoholism on the gastric mucosa. One group of observers emphasizes the injurious effect of alcohol on the stomach, while the second group believes that alcohol does not play an important part in causing chronic gastritis.

Bamberger [10] in 1855 was among the earliest of the former group to attribute chronic gastritis to alcoholism. Kremiensky [11] in 1868 observed slight inflammation, edema, thickening and pigmentation in dogs' stomachs after the administration of alcohol. Ruge [12] in 1870

From the Department of Medicine, the University of Chicago.

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9. Eusterman, G. B., and Balfour, D. C.: The Stomach and Duodenum, Philadelphia, W. B. Saunders Company, 1935, p. 518.

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observed grossly hyperemia, ecchymoses and edema of the gastric mucosa of dogs into whose stomachs alcohol had been instilled through a tube. Rabbits receiving alcohol subcutaneously for two weeks showed no mucosal changes. The effects in rabbits of prolonged ingestion of alcohol were studied by Dujardin-Beaumetz and Audigé [13] in 1879 and by Straus and Blocq [14] in 1887. They described the gross inflammatory changes, erosions, hemorrhages and mucus that appeared in the gastric mucosa. Kayser [15] reported in 1888 the gross anatomic changes in 120 chronic alcoholic addicts who died of delirium tremens, 69 of whom were found to have gross disease of the gastric mucosa.

Afanassijew [16] reported a decided increase in mucus with hyperemia and mucosal hemorrhages in the gastric mucosa of dogs, rabbits, guinea pigs and rats into whose stomachs alcohol had been introduced. One year later, in 1892, Laffitte [17] reported that alcohol could produce various grades of chronic gastritis, from the simple type to chronic ulcerating and atrophic gastritis.

Braun [18] could not confirm the work of Afanassijew in 1899 when he fed alcohol to rabbits and dogs for a considerable period. He observed erosions and hemorrhages, however, in several rabbits which had been fed high concentrations of alcohol.

After the earliest authors, including Fenwick [19] in 1880 and Ewald [20] in 1886, had stressed alcohol as among the foremost causes of chronic gastritis, "the injurious effect of alcohol on the gastric mucosa was accepted for many years so completely that the term gastritis almost implied alcoholic etiology." [21]

Faber and Lange [7] in 1908, by properly fixing the stomach immediately after death, were able to demonstrate by microscopic sections that alcohol may be an exogenous cause of chronic gastritis. They demonstrated atrophic gastritis histologically in the stomachs of persons with chronic alcoholism.

Von Baumgarten [22] observed gross hemorrhagic erosions of the gastric mucosa in rabbits, and D'Amato [23] found hyperemia and parenchymatous inflammation in the stomachs of dogs receiving alcohol daily over a period of months.

Stoerk [24] developed a complicated theory explaining the effect of alcohol on the gastric mucosa. He expressed the belief that the resorbed alcohol alters the nervous apparatus of the gastric wall, thereby causing abnormal gastric secretion which results in the subsequent inflammation of the stomach.

The first conclusive experimental work on this subject was done in 1925 by Thomsen,[4] who instilled large amounts of alcohol into the Pavlov pouch of a dog over a two year period and studied the consequent microscopic changes. He demonstrated the gradual transformation from acute gastritis to chronic atrophic gastritis in the dog's stomach.

Katsch [25] one year later contended that in all cases of alcoholism with gastric symptoms there is chronic gastritis if no other disease can be found. He expressed the belief that most cases of chronic gastritis originate with the abuse of alcohol.

In 1929 Konjetzny [26] observed that in acute gastritis caused by alcohol the glandular layer of the stomach is inflamed while the superficial layers remain normal. In chronic gastritis, however, both the superficial and the glandular layers are involved in the inflammatory process.

Henning [3] observed five years later that high concentrations of alcohol injure the surface epithelium of the stomach and that more dilute solutions injure the parenchyma. From his studies on the resorption of intravital stains from the stomach of the frog he postulated that the gland cells are inflamed because these cells resorb the alcohol after it passes through the crypts. The alcohol then passes from the gland cells through the interstitial tissue and capillary endothelium into the blood stream. Henning, moreover, has presented pathologic evidence that gastritis is frequently associated with alcoholism in man.

Villaret and his associates [27] observed gastroscopically chronic atrophic gastritis in chronic alcoholic addicts who had polyneuritis. The number examined was not reported. One patient had erosions, and the stomach was normal in 2.

Evidence began to appear in the early part of the twentieth century indicating that alcohol does not always produce gastritis. At the same time appeared a group of investigators who doubted that chronic alcoholism plays such a prominent part in causing chronic gastritis. Working with rabbits in 1905, Friedenwald [28] observed that the stomach was normal in some animals receiving weekly from 40 to 100 cc. of 50 per cent alcohol. A few years later, in 1911, Fahr [29] noted that although on gross examination, chronic gastritis was commonly found with chronic addiction to alcohol, the stomach not infrequently was normal. In his excellent report in 1916, Hirsch [30] discussed the considerable divergence of opinion that existed concerning the effect of chronic alcoholism on the stomach. In reviewing the work done on this subject experimentally and at autopsy he observed that microscopic studies were made rarely and that gross specimens were difficult to interpret because of the rapid autodigestion of the stomach. In most cases the condition of the stomach had been dismissed with the gross descriptive terms of chronic gastritis without inquiry into the microscopic picture. Hirsch agreed with Quensel,[31] moreover, that a clear and defi-

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19. Fenwick, S.: On Atrophy of the Stomach and on Nervous Affections of the Digestive Organs, London, J. & A. Churchill, 1880, p. 204.

20. Ewald, C. A.: Verdauungskrankheiten, Berlin, August Hirschwald, 1886.

21. Schindler, Rudolf: Gastroscopy, the Endoscopic Study of Gastric Pathology, Chicago, University of Chicago Press, 1937, p. 187.

22. von Baumgarten: Ueber die durch Alkohol hervorgerufenenpathologisch-histologischen Veränderungen, Verhandl. d. deutsch. path. Gesellsch. **11:** 229, 1907.

23. D'Amato, L.: Ueber experimentelle vom Magendarmkanal aus hervogerufenen Veränderungen der Leber und über die dabei gefundenen Veränderungen der übrigen Bauchorgane, Virchows Arch. f. path. Anat. **187:** 435, 1907.

24. Stoerk, G.: Ueber Gastritis chronica, Wien. klin. Wchnschr. **44:** 855, 1922; Zur Pathogenese der akuten Gastritis, ibid. **38:** 44, 1925.

25. Katsch, G.: Erkrankungen des Magens: Gastritis, in von Bergmann, G., and Staehelin, R.: Handbuch der inneren Medizin, Berlin, Julius Springer, 1926, vol. 3, p. 1, p. 554.

26. Konjetzny, G. E.: Die Deckepithelveränderungen der Magenschleimhaut bei akuter Gastritis, Virchows Arch. f. path. Anat. **275:** 816, 1929.

27. Villaret, M. L.; Moutier, F.; Justin-Besançon, L., and Klotz, H. P.: Caractère spécial des troubles gastriques, Bull. et mém. Soc. méd. d. hôp. de Paris **52:** 1155, 1936.

28. Friedenwald, J.: The Pathological Effects of Alcohol on Rabbits, J. A. M. A. **45:** 780 (Sept. 9) 1905.

29. Fahr: Beiträge zur Frage des Chronischen Alkoholismus, Virchows Arch. f. path. Anat. **205:** 397, 1911.

30. Hirsch, E. F.: The Gastric Mucosa in Delirium Tremens, Arch. Int. Med. **17:** 354 (March) 1916.

31. Quensel, U.: Alkoholfrågan från medicinsk sympunkt, Stockholm, 1913.

nite picture of the effect of alcohol on the stomach was impossible from the experiments described because stronger concentrations of alcohol were given animals than are used by chronic alcoholic addicts.

Hirsch put Zenker's fixing fluid immediately after death into the stomachs of 13 chronic alcoholic addicts, 9 of whom had died of delirium tremens, and studied carefully the microscopic changes of the stomach. He found no evidence of an acute or a chronic inflammatory process. Petechial hemorrhages were the most common lesions and were found in 10 of the 13 addicts. The protocols, however, reveal moderate atrophic gastritis in 3, mucoid degeneration in 2, hyperemia of the stomach in 8 and edema in 3. Hirsch concluded that chronic alcoholism alone is of doubtful etiologic importance in chronic gastritis. It will be shown later how remarkably well our gastroscopic results agree with some of these observations.

Arlitt and Wells [32] observed the same year that "the slight effect of alcohol on the stomachs of rats corresponds to the relatively normal condition of the gastric mucosa of human alcoholics observed by Hirsch." They fed rats 0.25 to 2.25 cc. of alcohol daily for periods varying from two to ten months. Crämer [33] maintained in 1921 that alcohol is seldom a cause of gastritis in man.

With the sudden and rapid development of gastroscopy in Germany after 1922, gastroscopic observations on the effect of alcohol on the stomach began to appear, although no concerted study of the subject was reported.

Schindler [34] stated in 1923 that alcohol cannot play an important part in chronic gastritis, for this condition had been encountered frequently in patients subjected to gastroscopic examination, relatively few of whom used alcohol at all.

Moutier [35] described a mixed gastritis with congestion, cardiospasm and increased mucus in the stomachs of persons addicted to alcohol. Gutzeit [36] observed edema, hyperemia and mucus in acute alcoholic gastritis but was uncertain whether prolonged alcoholism produces chronic gastritis. He doubted that most chronic gastritis originates in the abuse of alcohol, as contended by Katsch.[23] Beer drinkers, he noted, had normal stomachs. In the absence of nicotine, beer and whisky together did not produce gastritis. He expressed the belief that in heavy smokers who drink beer and whisky or whisky alone severe gastritis develops. Abuse of nicotine, he concluded, is a more important cause of chronic gastritis than alcohol.

It is obvious from these observations and experimental studies that there is considerable difference of opinion concerning the effect of the prolonged use of alcohol on the gastric mucosa. Gross descriptions of the stomach have been highly unreliable because of postmortem autolysis, and microscopic sections have been made infrequently. Animal experiments have not been conclusive.

The direct visualization of the living gastric mucosa is the most reliable clinical method of diagnosing gastritis. One of us [34] predicted in 1923 that the diagnosis of chronic inflammation of the stomach would be the most important function of gastroscopy. Since then gastroscopic examination has been accepted generally as the best clinical method of diagnosing chronic gastritis.

Relatively little work has been done on the effect of alcoholism on the human stomach, and since pathologic studies and animal experiments have yielded conflicting and divergent results it was thought advisable to study this problem by direct gastroscopic observations of the living gastric mucosa.

PATIENTS EXAMINED

One hundred men with chronic alcoholism were examined gastroscopically. Their ages varied from 24 to 66: Twenty-three were under 35, 45 were between 35 and 50, and 32 were between 59 and 66. The duration of the alcoholism ranged from three to fifty-two years, with an average of twenty-one and one-tenth years. Twenty-three men had been drinking for ten years or less, and 77 gave a history of alcoholism of ten to fifty-two years' duration. Several had begun to drink when they were 12 to 14 years of age.

The alcoholic beverages varied widely. "Derail," "moonshine" and "white smoke" were among the most popular beverages consumed. These consist of 94 per cent denatured alcohol diluted with water so that the alcohol content varies between 20 and 90 per cent, depending on the dilution. An oxidized petroleum distillate, among other things, is used to denature the alcohol. Another favorite beverage is made from "Sterno," or "canned heat," which is 94 per cent denatured alcohol gelled with 4 per cent cellulose nitrate. The alcohol is extracted and diluted.

Whisky containing 40 to 45 per cent alcohol is drunk by some, but its price is more or less prohibitive. Wine containing 10 to 15 per cent alcohol and beer are drunk frequently along with the other beverages. Rubbing alcohol containing 70 per cent alcohol denatured with acetone and zinc phenolsulfonate is not infrequently consumed. Some alcoholic addicts drink bay rum, Jamaica ginger, shaving lotion, hair tonic, vanilla extract and shoe polish, the alcohol content of which varies from 10 to 50 per cent. Others insist that they have drunk methyl alcohol, radiator alcohol and horse and mule antiseptics.

The 100 men studied gastroscopically drank from 1 to 6 pints daily (a pint is about half a liter) of the alcoholic beverages mentioned, which contained 20 to 90 per cent alcohol. The average daily consumption was 2⅘ pints. About half (53) drank 2 to 6 pints daily, and 44 had drunk 1 to 2 pints daily for more than twenty years. Three were beer drinkers, having consumed 3 to 5 gallons (a gallon is almost 4 liters) of beer daily for ten to twenty-five years.

The majority of the subjects were of Irish (45 per cent) and German (22 per cent) descent. The next largest group consisted of Poles (7 per cent), Englishmen (4 per cent), Swedes (4 per cent) and Norwegians (4 per cent). The remaining 14 per cent were distributed among French-Canadians, Bohemians, Dutchmen, Indians, Hungarians, Russians, Italians and Danes. Most had been born in the United States.

The diets were studied in detail and found essentially the same. Fresh fruits and vegetables and milk and butter were appreciably deficient in every instance. The typical diet consisted of bread, small amounts of meat, an occasional egg and large amounts of coffee.

Studies on vitamin C by Dr. A. H. Bryan revealed abnormally low values for this vitamin in the blood.

32. Arlitt, A. H., and Wells, H. G.: The Effect of Alcohol on the Reproductive Tissues, J. Exper. Med. **26**: 769, 1917.
33. Crämer, cited by Haneborg, A.: The Effect of Alcohol on Digestion in the Stomach, Oslo, Grondahl & Son, 1921.
34. Schindler, Rudolf: Lehrbuch und Atlas der Gastroskopie, Munich, J. F. Lehmann, 1923, p. 85.
35. Moutier, F.: Traité de gastroscopie et de pathologie endoscopique de l'estomac, Paris, Masson & Cie, 1935, p. 154.
36. Gutzeit, K., and Teitge, H.: Die Gastroskopie, Berlin, Urban & Schwartzenberg, 1937, p. 158.

A deficiency of vitamin B_1 was found in all but 1 of the 15 cases studied by Dr. J. M. Goldinger. The level of pyruvic acid in the blood was definitely and consistently elevated, but the values were not as high as those found in cases of peripheral neuritis.

TABLE 1.—*Gastroscopic Diagnoses in One Hundred Cases of Chronic Alcoholism*

Diagnosis		Number of Cases
Normal stomach		43
Essentially normal stomach		12
Superficial gastritis		22
(*a*) Superficial gastritis	9	
(*b*) Superficial hemorrhagic gastritis	9	
(*c*) Superficial erosive gastritis	2	
(*d*) Superficial hemorrhagic erosive gastritis	2	
Atrophic gastritis		13
(*a*) Atrophic gastritis	8	
(*b*) Atrophic hemorrhagic gastritis	3	
(*c*) Polyps of the stomach with atrophic gastritis	2	
Combined superficial and atrophic gastritis		8
Localized hypertrophic gastritis		1
Hyperplastic nodular gastritis		1

Most of the men smoked the equivalent of fifteen to twenty cigarets daily. There were several nonsmokers, and a few men smoked thirty to forty cigarets or their equivalent daily.

Poor dental conditions were observed in practically all the men. Retained roots and fragments of roots, dental caries and pyorrhea alveolaris were seen frequently.

GASTROSCOPIC STUDIES

If one tries to evaluate the condition of the gastric mucosa by direct gastroscopic gross inspection, then the question arises: How accurate are such gastroscopic observations? It could be suspected that definite, diffuse inflammatory changes might be overlooked and that diffuse alterations, as definitely seen during gastroscopic examination, are not a sign of inflammation in the microscopic sense. Comparative studies, undertaken during recent years by one of us (R. S.) and not yet published, on carcinoma-bearing stomachs and on stomachs from which biopsy material could be taken during operative procedures have thrown some light on this question. The results of these studies have been rather astonishing. It has to be admitted that minute inflammatory changes involving chiefly the glandular cells might not be seen in the gastroscopic observation.[37] Obviously such minute changes are of no importance to the problem discussed in this paper. Slightly more apparent changes, however, were recognized at gastroscopic examination. These became especially obvious when examination was performed on patients who had had roentgen therapy of the stomach and in whom consequently histamine-proved anacidity had developed. In almost all superficial gastritis was observed.

If, on the other hand, definite superficial gastritis was seen, then a biopsy specimen taken from the involved region of the gastric wall showed inflammation, usually consisting of a cellular infiltration of the uppermost layers of the gastric mucosa and a dense agglomeration of either plasma cells or polymorphonuclear leukocytes. If, furthermore, an area of normal mucosa was observed in a carcinoma-bearing stomach, then microscopic sections taken from this region revealed almost invariably a perfectly normal gastric mucosa. In cases in which atrophic gastritis was seen gastroscopically the microscopic sections invariably revealed shrinking of the gastric mucosa, lack of glands or transformation of the epithelium into the intestinal type with many goblet cells. Therefore we believe there is definite evidence that gastroscopic observation makes it possible to decide whether inflammation of the mucosa is present.

37. Palmer, W. L., and Templeton, F. E.: The Effect of Radiation Therapy on Gastric Secretion, J. A. M. A. **112**: 1429 (April 15) 1939.

NORMAL STOMACH

The gastroscopic examination of 100 men who had consumed an average of 2⅕ pints of alcohol daily for more than twenty-one years revealed that the stomach was entirely normal in 43 cases (tables 1 and 2). The gastric mucosa presented no evidence whatever of inflammation, hemorrhages or erosions, and the soft orange-red, pliable mucosa could not be differentiated in any way from that in a large control series of normal stomachs.

It is interesting to observe that the alcoholic addicts with normal stomachs drank the same amount and quality of alcohol as the group with pathologic conditions of the stomach to be described later. A considerable number of these patients whose gastric mucosa was normal had been drinking 3 to 6 pints of alcohol daily for twenty to forty years, and 8 had delirium tremens. One patient with a normal stomach had drunk 5 to 6 gallons of beer daily for ten years.

ESSENTIALLY NORMAL STOMACH

The stomach was found to be essentially normal in an additional 12 cases, the gastric mucosa being normal except for an occasional small mucosal hemorrhage, a pigment spot lying in a normal mucosa, a single tiny erosion or a small patch of adherent mucus observed on a perfectly normal mucous membrane. The pathologic change was so small and the underlying mucosa and the remaining portion of the stomach so healthy that the stomach was classified as essentially normal. Tiny mucosal hemorrhages or pigment spots occurred in 8, erosions in 2 and adherent mucus in 2 of the 12 cases.

TABLE 2.—*Analysis of Lesions of the Stomach Seen Gastroscopically in One Hundred Cases of Chronic Alcoholism*

Diagnosis		Number of Cases
1. Normal stomach		43
2. Essentially normal stomach		12
(*a*) Small patch of mucus on normal mucosa	2	
(*b*) Mucosal hemorrhages in normal mucosa	8	
(*c*) Small erosions in normal stomach	2	
3. Superficial gastritis		30
(*a*) Mild superficial gastritis	10	
(*b*) Moderately severe	14	
(*c*) Severe	6	
4. Atrophic gastritis		21
(*a*) Mild atrophic gastritis	3	
(*b*) Moderately extensive atrophic gastritis	10	
(*c*) Extensive atrophic gastritis	8	
5. Mucosal hemorrhages		22
(*a*) Essentially normal stomach	8	
(*b*) Superficial hemorrhagic gastritis	9	
(*c*) Superficial hemorrhagic erosive gastritis	2	
(*d*) Atrophic hemorrhagic gastritis	3	
6. Erosions		7
(*a*) Essentially normal stomach	2	
(*b*) Superficial erosive gastritis	3	
(*c*) Superficial hemorrhagic erosive gastritis	2	
7. Polyps of the stomach		2
Polyps and extensive atrophic gastritis	2	
8. Hypertrophic gastritis		1
9. Hyperplastic nodular gastritis		1

Thus the gastric mucosa was found normal or essentially normal in 55 of 100 men who had consumed an average of almost 3 pints of alcohol daily for more than twenty years.

SUPERFICIAL GASTRITIS

Superficial gastritis, an inflammation of the stomach characterized by patches of thick, gray, adherent mucus covering an edematous and irregularly colored mucosa, was the most common disease observed in the 45 cases of addiction to alcohol accompanied by gastric disease. It was observed in 30 cases. The gastritis was mild in 10 cases, in which only small patches of mucus were seen, and was more severe in 14, in which larger areas of the gastric mucosa were involved. In 6 cases the gastritis was so severe that the entire mucous membrane appeared to be covered with grayish white, adherent mucus. Large sheets of mucus hanging from the gastric walls covered the mucosa so completely in one case that no mucous membrane whatever was discernible.

Simple superficial gastritis and superficial hemorrhagic gastritis were each observed in 9 cases. Superficial erosive gastritis and superficial hemorrhagic erosive gastritis each occurred in 2 cases, and combined superficial and atrophic gastritis appeared in 8 cases. Antral gastritis appeared infrequently and then only in conjunction with gastritis of the body of the stomach, with which it was seen in 7 cases. In the remaining 23 cases the antrum and the pylorus were normal and the superficial gastritis was confined to the body of the stomach.

ATROPHIC GASTRITIS

The next most common disease of the stomach in chronic alcoholism is atrophic gastritis, which was found in 21 cases. The gastric mucosa in these cases was thin and gray, and networks of purplish blue blood vessels could be seen through the atrophic mucosa. Usually the gastritis became more severe in the uppermost portions of the stomach, but associated antral gastritis was noted in 6 of the 21 cases. A single area of atrophy occurred in only 3 cases, and moderately extensive atrophy involving large areas of the stomach and associated with large, thick, arborizing blood vessels was seen in 10 cases. The stomach was almost completely atrophic in 8 cases, in which huge, protruding, branching blood vessels with severe thinning and graying of the mucosa could be seen easily.

Simple atrophic gastritis was seen in 8 cases and hemorrhagic atrophic gastritis in 3. Polyps were noted with atrophic gastritis in 2 cases, and the atrophic gastritis was combined with superficial gastritis in 8 cases, as mentioned previously. In these, patches of thick gray adherent mucus were observed superimposed on a thin gray mucosa interspersed with arborizing blood vessels. Usually the superficial gastritis was more pronounced in the lower portions of the stomach, and the atrophy appeared more extensively in the upper portions, but in some cases patches of superficial gastritis were distributed extensively throughout the stomach.

MUCOSAL HEMORRHAGES

According to former gastroscopic studies mucosal hemorrhages may be observed in all types of gastritis and sometimes in an apparently normal gastric mucosa.

The relatively high incidence of mucosal hemorrhages in the stomachs of persons with chronic alcoholism is striking. They were found in 22 of the 100 cases studied and were observed in the "essentially normal" stomach in 8 of the 22 cases. The hemorrhages were small, perhaps 1 to 2 mm. in diameter, and were situated in a normal mucosa unassociated with any other pathologic conditions. The mucosal hemorrhages were usually round and discrete and varied in color from red to dark brown. Not more than two hemorrhages or pigment spots occurred in any of the stomachs.

TABLE 3.—*Symptoms of Gastric Disease in Chronic Alcoholism*

Diagnosis	Number of Cases		Total
Normal and essentially normal stomach			
(*A*) No symptoms (excluding morning nausea and vomiting)		51	
(*B*) Symptoms simulating bowel distress		4	
		—	55
Pathologic condition of stomach			
(*A*) Symptoms			
1. Abdominal distention, epigastric distress and belching			
(*a*) Superficial gastritis	6		
(*b*) Superficial hemorrhagic gastritis	2		
(*c*) Superficial and atrophic gastritis	3		
(*d*) Atrophic gastritis	3		
	—	14	
2. Atypical ulcer-like symptoms			
(*a*) Superficial gastritis	1		
(*b*) Superficial hemorrhagic gastritis	1		
(*c*) Atrophic gastritis	2		
	—	4	
3. Typical peptic ulcer symptoms (past history of duodenal ulcer)			
(*a*) Superficial gastritis	1		
(*b*) Superficial hemorrhagic gastritis	1		
	—	2	
4. Profound weakness			
(*a*) Atrophic gastritis	4		
	—	4	—
Total			24
(*B*) No symptoms			
1. Superficial gastritis	10		
2. Atrophic gastritis	9		
3. Hypertrophic gastritis	1		
4. Hyperplastic nodular gastritis	1		
	—		
Total		21	
		—	45

Hemorrhages were observed with other gastric disease in 14 cases: 9 cases of superficial hemorrhagic gastritis, 2 cases of superficial hemorrhagic erosive gastritis and 3 cases of atrophic hemorrhagic gastritis. The stomach in 9 cases of superficial hemorrhagic gastritis presented numerous large red diffuse hemorrhages interspersed with smaller punctate discrete red and brown hemorrhages scattered over a swollen mucosa covered with patches of thick grayish white adherent mucus.

The most spectacular pictures of gastric disease in which hemorrhages occurred were seen in 2 cases of superficial hemorrhagic erosive gastritis. In the first of these cases there were six large red diffuse poorly circumscribed hemorrhages lying in the swollen irregular mucosa of the lesser curvature and the anterior wall of the midportion of the stomach. A large fusiform fold appeared on the anterior wall of the greater curvature. Situated on this fold next to a large reddish brown discrete hemorrhage was seen a definite gray erosion 3 to 4 mm. in diameter surrounded by a red border. This erosion interrupted the continuity of the gastric mucosa and appeared deep. Seven or eight small round discrete hemorrhages appeared in the swollen mucosa of the anterior wall of the greater curvature in the uppermost portion of the stomach. In the second

case was seen a round depressed grayish black erosion 4 to 5 mm. in diameter, surrounded by several round red and reddish brown hemorrhages on the posterior wall of the greater curvature in the midportion of the stomach. Higher up two other erosions were seen surrounded by a red border and by numerous red and brown punctate hemorrhages.

The stomach in the first of the 3 cases of atrophic hemorrhagic gastritis revealed five small round oval and linear discrete red hemorrhages lying in the atrophic mucosa of the lesser curvature and the anterior wall of the midportion. That in the second case had about twenty irregular diffuse red hemorrhages in the network of blood vessels in the thin gray atrophic mucosa of the anterior wall of the lesser and greater curvatures. The stomach in the third case had one reddish brown hemorrhage, 3 mm. in diameter, in the atrophic mucosa of the posterior wall of the greater curvature.

EROSIONS

Erosions of the gastric mucosa have been described in all types of gastritis, although they have been said to be infrequent in chronic atrophic gastritis. Hemorrhagic erosions have been seen, furthermore, in an apparently normal gastric mucosa.

TABLE 4.—*Symptoms of Chronic Gastritis*

	Number of Patients	Incidence of Symptoms
Normal stomach	55	4 (7.3%)
Pathologic condition of stomach	45	24 (53.3%)
1. Severity of symptoms		
(*a*) Mild gastritis	(12)	4 (33.3%)
(*b*) Severe gastritis	(33)	20 (60.6%)
2. Types of gastritis		
(*a*) Superficial	(22)	12 (54.5%)
(*b*) Atrophic	(21)	12 (57.1%)
(*c*) Hypertrophic	(1)	0
(*d*) Hyperplastic nodular	(1)	0

Erosions of the gastric mucosa were seen in 7 cases. Three cases of superficial erosive gastritis were noted. Among the areas of thick whitish gray adherent mucus appeared one or two small depressed grayish erosions disrupting the continuity of the gastric mucosa. They appeared in a swollen, irregular mucosa and were surrounded usually by a red border. The erosions observed in 2 cases of superficial hemorrhagic erosive gastritis have been described. Finally, a small erosion was seen in each of two stomachs which were completely normal otherwise.

OTHER GASTRIC DISEASES

Localized hypertrophic gastritis of the anterior wall of the lesser curvature above the angulus was seen in only 1 case. The mucosa in this area was velvety and distinctly nodular.

Polyps of the stomach occurred in 2 patients, aged 53 and 56. In the former the antrum and the body of the stomach were entirely atrophic, with extensive graying and thinning of the mucosa and with large networks of blood vessels. In the atrophic mucosa was a white round pea-sized polyp between the folds on the posterior wall of the greater curvature. In the latter patient two small pink oval polyps were seen *en face* midway between the anterior and posterior walls on the lesser curvature above the angulus. The polyps were lying in an atrophic mucosa and appeared redder than the surrounding mucous membrane. There was extensive atrophic gastritis of the entire body of the stomach. Benign polyps are not infrequently seen with chronic atrophic gastritis.[38]

A most unusual form of gastritis was seen in 1 case. A Pole aged 44 who had been drinking 3 to 4 pints of alcoholic beverages daily for twenty-five years had hyperplastic nodular gastritis. The antrum presented an unusual picture. Six soft red pliable nodes varying in size from that of a large pea to that of a marble appeared on the greater curvature and posterior wall of the antrum. Similar large red pliable nodes were seen on the anterior wall of the lesser curvature above the angulus. Segmented folds were observed in the upper portions of the stomach. The rest of the stomach was normal. The gastroscopic picture was similar to that in a case of hyperplastic polyps described by one of us.[38]

SYMPTOMS OF CHRONIC ALCOHOLIC ADDICTS WITH GASTRITIS

Schindler,[39] Benedict,[40] Schiff [41] and others have described the symptoms associated with chronic gastritis. Although these observers agreed that symptoms may be lacking in some cases, the incidence of definite symptoms in chronic gastritis has not been established.

It should be emphasized that only 4 of the 55 patients with normal or essentially normal stomachs complained of mild abdominal and epigastric distress. In contrast, definite subjective complaints were noted in 24 of the 45 patients with chronic gastritis. Severe or moderately severe gastritis was accompanied by symptoms in 20 of the 33 patients in whom it was found (tables 3 and 4).

Symptoms occurred, then, in 28 of the 100 patients studied. The most frequent complaints, observed in 18 of these 28, were abdominal distention, belching and epigastric discomfort occurring immediately after meals, usually relieved by sodium bicarbonate or alcohol, the latter being more efficacious in most instances. Sharp epigastric pain was infrequent, but gnawing epigastric distress and fulness occurred occasionally. Nocturnal pain was rare, and weakness and anorexia were not complained of. Constipation or diarrhea occurred occasionally. Chronic gastritis was present in 14 of the 18 patients: superficial gastritis in 6, superficial hemorrhagic gastritis in 2, atrophic gastritis in 3 and superficial and atrophic gastritis in 3. The remaining 4 had normal stomachs.

Four patients had pain simulating that caused by ulcer but not typical. They complained of sharp, gnawing or burning midepigastric pain one-half to one hour after meals. Food or sodium bicarbonate relieved the pain in some instances, but in others only alcohol gave relief. Nocturnal pain occurred only occasionally. At gastroscopic examination all 4 were found to have severe gastritis: 1 had moderately severe superficial gastritis, 1 had severe superficial hemorrhagic gastritis and 2 had extensive atrophic gastritis.

Two patients gave the history of a previous duodenal ulcer with melena, hematemesis and verification by roentgenogram. On examination they presented typical symptoms of ulcer. In both the pylorus was drawn posteriorly, presumably by adhesions from an old duodenal ulcer. One had extensive superficial hemor-

38. Schindler, Rudolf, and McGlone, F.: Familial Occurrence of Hyperplastic Gastric Polyps, Arch. Surg. **41**: 1483 (Dec.) 1940.
39. Schindler, Rudolf: cited by Portis, S. A.: Diseases of the Digestive System, Philadelphia, Lea & Febiger, 1941, p. 463.
40. Benedict, E. B.: Chronic Gastritis, New England J. Med. **212**: 468, 1935.
41. Schiff, L., and Goodman, S.: Chronic Gastritis: Present Day Status, Ohio State M. J. **34**: 1220, 1938.

rhagic gastritis and the other extensive superficial gastritis. These few observations do not permit any statement concerning the relationship between alcoholism and peptic ulcer.

Four patients complained of profound weakness. Each had extensive atrophic gastritis of the stomach. One complained of extreme weakness with numbness and tingling of the fingers. There was extensive atrophic gastritis of the body and antrum of the stomach. This weakness as a symptom of chronic atrophic gastritis has been described by Schindler and Murphy.[42]

The morning nausea and vomiting of persons with chronic alcoholism is difficult to explain. It occurs as frequently when the stomach is normal as when it is diseased. The first swallow in the morning produces nausea and vomiting. These symptoms are more likely to occur if water is drunk. After two or three drinks of alcohol the nausea and vomiting disappear, and there is no recurrence until the following morning. These symptoms probably are not related to disease of the stomach.

COMMENT

The stomach was found normal or essentially normal in 55 of 100 men who had drunk large amounts of alcohol over a long period. It is interesting that Kayser [15] found the stomach grossly normal at autopsy in 51 of 120 chronic alcoholic addicts. The high percentage of normal stomachs as seen gastroscopically is in accord, moreover, with the microscopic observation of Hirsch,[30] who emphasized the relative infrequency of acute or chronic inflammation in the freshly fixed stomachs of alcoholic addicts who had died of delirium tremens. It agrees, likewise, with the views of Schindler and Gutzeit, who expressed the belief that alcohol is not the foremost etiologic factor in chronic gastritis, as has been thought for so many years by Katsch and others.

It is difficult to understand how the stomach can withstand the assault of 4 to 6 pints of 20 to 90 per cent alcohol daily for twenty to forty years and yet appear perfectly normal. Fifty-five alcoholic addicts drank as much as those with gastritis and yet presented at gastroscopic examination a perfectly normal, soft orange-red, pliable gastric mucosa indistinguishable from that of a normal, healthy 20 year old youth.

The cause of the gastritis observed in 45 of the 100 patients in our series is not clear. We believe that this incidence is much greater than should be expected for subjects chosen at random. Whether the gastric lesions can be ascribed to an individual sensitivity to alcohol or to a deficiency disease is not known. It should be mentioned, however, that a vitamin deficiency was found as frequently in the 55 alcoholic addicts with normal stomachs as in the patients with chronic gastritis. There was no correlation, moreover, between the severity of the gastritis and the duration of the alcoholism or the amount of alcohol drunk.

Superficial gastritis, atrophic gastritis or a combination of both was observed in 43 of the 45 patients who had gastric disease. The combination of superficial with atrophic gastritis has been described frequently, and it is well known that atrophic gastritis may develop from superficial gastritis.

The frequency of hemorrhages (22 per cent) in the gastric mucosa of persons with alcoholism is in close agreement with the observations of Hirsch, who found hemorrhages in the stomachs of 10 of 13 alcoholic addicts examined at autopsy. The position and appearance of these hemorrhages preclude the possibility of trauma as a factor.[43]

The study of the symptoms of our patients led to rather striking conclusions. Of the 55 patients having essentially normal stomachs only 4 had some symptoms simulating bowel distress. In contrast to this group, not less than 60 per cent of all patients having severe gastritis complained of definite abdominal distress, either abdominal distention or belching or symptoms typical of ulcer. There has been some skepticism until now as to whether the superficial and atrophic forms of gastritis produce symptoms. Our observations, however, suggest strongly that both types of gastritis, especially the superficial, are able to produce severe abdominal symptoms, although there may be complete absence of symptoms or symptom free intervals.

Although we did not study the gastric secretion of our patients, it is interesting to observe that free acid was present in the secretion of 38 of 63 patients during fasting. Superficial gastritis was found in 16 and atrophic gastritis in 2 of these 38. Of the 25 with no free acid in the secretion during fasting, only 6 had superficial gastritis and 5 atrophic gastritis. The results in the latter group cannot be evaluated because histamine studies were not made.

Why the drinking of alcohol is accompanied by severe and extensive gastritis in some cases and not in others is difficult to understand. The diet was studied in detail as described previously and was found essentially the same for the 55 patients with normal stomachs as for the 45 patients with gastric disease. The same is true of the studies on vitamins C and B_1 for the two groups. Moreover, nonsmokers presented diseased stomachs as frequently as heavy smokers revealed normal stomachs. No correlation was found between the abuse of nicotine and gastric disease. Poor dental conditions appeared so consistently that a distinction between the normal and the diseased stomach on this basis seemed untenable.

Although the prolonged use of alcohol seems to produce chronic gastritis in some patients and has no effect whatever on the stomachs of others, the reason for this discrimination is still unknown.

CONCLUSIONS

1. Gastroscopic examination of 100 men who had consumed an average of 2.8 pints of alcohol daily for more than twenty years revealed that the stomach of 55 per cent was essentially normal.

2. The gastric diseases observed in 45 per cent consisted mainly of superficial gastritis, atrophic gastritis or a combination of the two.

3. Mucosal hemorrhages occurred in 22 per cent.

4. Moderately severe and severe gastritis were accompanied by definite symptoms in 60 per cent, while only 7 per cent of the alcoholic addicts with normal stomachs had gastrointestinal complaints.

5. No correlation was observed between the incidence and severity of the gastritis and the duration of the alcoholism, the amount of alcohol drunk, the abuse of nicotine, dental infection or vitamin deficiency.

42. Schindler, Rudolf, and Murphy, H. M.: Symptomatology of Chronic Atrophic Gastritis, Am. J. Digest. Dis. **7**: 7, 1940.

43. Schindler, Rudolf: Chronic Localized Gastric Purpura, Am. J. Digest. Dis. **5**: 796, 1939.

Clinical Notes, Suggestions and New Instruments

EXCESSIVE ABDOMINAL DISTENTION AT HIGH ALTITUDES IN A CASE OF CONGENITAL MEGACOLON (HIRSCHSPRUNG'S DISEASE)

LEON H. COLLINS JR., M.D., PHILADELPHIA

With the rapid increase in air transportation occurring in this country, the effects on certain disease processes of reduced barometric pressure take on growing clinical importance. The levels attained in commercial airline transportation today at times are sufficient to allow of a 50 to 100 per cent expansion of air or gas contained in one of the body cavities.

It has long been recognized that reduced barometric pressure with its attendant reduction in the partial pressure of inspired oxygen affects unfavorably some pathologic states, particularly cardiac and pulmonary diseases. Especially interesting, however, have been those cases in which the expansion of air or gas at a reduced barometric pressure of itself has led to untoward symptoms.

Lovelace and Hinshaw [1] have recently drawn attention to the hazards of air transportation to patients with pneumothorax. They point out that the expansion of the air introduced into the pleural cavity may cause tears of pleural adhesions or of cavity walls near the periphery of the lung.

The expansion of air or gas below the diaphragm also may bring its undesirable effects. When encountered, these symptoms prove to be what might have been expected from the known physical properties of gases. Recently I have had the opportunity of observing a young man with congenital idiopathic dilatation of the colon who, while flying at 14,000 feet, had symptoms explainable on the basis of gas expansion at this reduced barometric pressure. In this report congenital idiopathic dilatation of the colon and Hirschsprung's [2] disease are considered synonymous.

REPORT OF CASE

A man aged 23, at present a senior in the Dental School of the University of Pennsylvania, is in excellent health. During the first day of his life a well defined dilatation of the colon was observed. This dilatation, however, had not interfered with the delivery. A similar dilatation of the colon is not known to exist in any of his relatives.

Fig. 1.—Congenital megacolon. There is a huge dilatation of the entire colon, more extensive on the left side than on the right.

Until the age of 3 years adequate movements of the bowel were obtained with the aid of enemas. Since the age of 3, liquid petrolatum (from 15 to 30 cc.) daily plus an occasional enema has been sufficient to maintain evacuation of the bowel. With this prolonged ingestion of liquid petrolatum clinical symptoms of vitamin A deficiency have never developed.

Throughout life his general health has been good. He has engaged freely in competitive athletics without difficulty. He has a well balanced diet. He can eat almost anything without difficulty with the exception of vinegar and fried foods. He has noted that no particular food seems to produce more gas than others. Each evening about a half an hour after his dinner he lies down on his left side for a few moments. He then passes by rectum the gas that has accumulated in his colon. By this simple daily routine his abdomen remains comfortable.

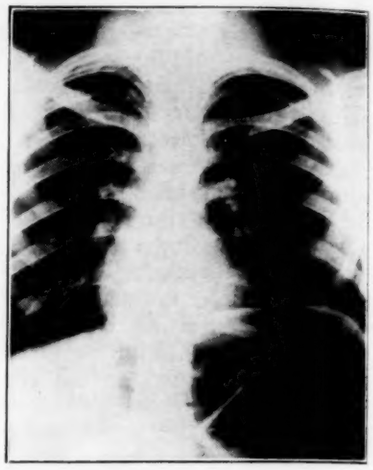

Fig. 2.—Congenital megacolon, showing an extensive elevation of the left dome of the diaphragm and displacement of the cardiac shadow to the right side.

He is well developed, is 6 feet, 2 inches (188 cm.) tall and weighs 155 pounds (70.3 Kg.). His usual temperature is 98 F., pulse rate 68 and blood pressure 110 systolic and 70 diastolic. On examination there was a moderate distention of his entire abdomen, both in the erect and in the recumbent posture. Masses or viscera were not palpable. There were no areas of tenderness. The percussion note over the entire abdomen was tympanitic. The rectal sphincters were normal.

Laboratory studies including a complete blood count, examination of the urine, fractional gastric analysis, a blood Wassermann test and a vital capacity test were negative. The standard as well as the limb leads of the electrocardiogram were normal. Roentgen examination of the gastrointestinal tract (fig. 1) showed a huge dilatation of the entire colon as well as of the sigmoid and rectum. Roentgen examination of the chest (fig. 2) showed considerable elevation of the left dome of the diaphragm and displacement of the cardiac shadow to the right side.

He had flown on many occasions but never higher than from 3,000 to 4,000 feet. A few months ago, however, he was a passenger on a regularly scheduled commercial flight between Chicago and New York. Because of bad weather between Chicago and Cleveland it was necessary to fly at altitudes higher than customary. At 10,000 feet he began to notice that his abdomen was swelling perceptibly. This swelling increased steadily until at 14,000 feet his abdomen looked like that of a "pregnant woman." Also he was dyspneic and complained of precordial pain. There was no cyanosis, dizziness or nausea.

His curiosity being aroused, he was anxious to see whether the foregoing symptoms would disappear without deflation by rectum when the plane made its scheduled landing at Cleveland. The symptoms did disappear as the plane was descending to land at Cleveland. Because of bad weather when crossing the Alleghenies, the plane eventually again ascended to 14,000 feet. At this time the patient again complained of considerable abdominal distention, dyspnea and precordial pain. He succeeded in deflating himself and was symptom free from then on into New York.

COMMENT

According to Behnke,[3] most of the gas in the colon is nitrogen residual from swallowed air. Like any other gas, this conforms to Boyle's law and its volume increases inversely as the absolute pressure, the temperature remaining constant. The expansion in colonic gas that took place in this instance is considered adequate to explain the symptons experienced at an altitude of 14,000 feet. At that level the gas volume is about one and nine-tenths times that at sea level.

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2. Hirschsprung, Harold: Stuhlträgheit Neugeborener in Folge von Dilatation und Hypertrophie des Colons, Jahrb. f. Kinderh. **27**: 1, 1888.

3. Behnke, A. R.: Proceedings, Post Graduate Course in Aviation Ophthalmology and Aviation Medicine, Washington, D. C., The George Washington University School of Medicine, 1940, p. 206.

As air transportation becomes a more common mode of travel it is reasonable to suspect that more clinical conditions [4] will be reported which either temporarily or permanently are adversely affected by the reduced barometric pressure. Congenital idiopathic dilatation of the colon should be included in this group.

CONCLUSION

A patient with congenital idiopathic dilatation of the colon (Hirschsprung's disease) while flying at 14,000 feet experienced considerable abdominal distention, dyspnea and precordial pain. These symptoms were relieved (1) when the plane descended to normal barometric levels for a landing and (2) when the patient deflated himself while the plane was still in flight.

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MULTIPLE CASES OF TONSILLECTOMY AND POLIOMYELITIS

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The presence of poliomyelitis in epidemic form in various parts of the United States during this summer and fall, the obvious increase in the incidence of the bulbar type of the disease and the suspected association between tonsillectomies and bulbar types of paralysis make the present preliminary report of general interest.

Five of six children, aged 11, 9, 8, 7 and 6 years, had a tonsillectomy and adenoidectomy on August 22. The operations were done under general anesthesia and under the strictest of aseptic precautions in a clinic, and the children went home the same day in good condition. Three of the children began to show symptoms of poliomyelitis on September 3. One child probably started to have symptoms on the 3d and another on the 5th of September. All the symptoms were referred to the gastrointestinal tract—anorexia, nausea and vomiting. Dysarthria and dysphagia developed in 3 of the children on September 6 and in 2 the next day, so that by September 7 all 5 had bulbar poliomyelitis. In 2 there was involvement of the right seventh nerve and in 1 of the left. In 3 there was palatine paralysis. In 1 child there was a lower motor neuron lesion involving muscles of the arms and legs, paralysis being more marked in the upper arms. One child died at 6:30 a. m. and one at 3:30 p. m. on September 8; a third died at 11:30 a. m. on September 9. One child appears as though he should get better, but the other is still seriously ill.

The parents and the child of the family who was not operated on, who is the youngest of the children and 2½ years of age, have had no symptoms of the disease.

Since the operations were performed under most sterile conditions and surroundings, it is unlikely that the disease was introduced at that time. This leaves two possibilities: (1) Poliomyelitis virus may have been present in the throats of these children at the time of the operation or (2) the virus was introduced after the operation. The time interval between the operations and the onset of symptoms—twelve days—makes one suspect that the virus was not present in the throats when the tonsils and adenoids were removed and that it probably was introduced later. Whether or not the virus is present in the stools of the child and the parents who are asymptomatic remains to be ascertained by further study.

There have been no cases of poliomyelitis in the neighborhood where this family lives. The only possible epidemiologic connection lies in the fact that from August 28 to September 2 the stricken children played with two other children who had been visiting some neighbors. The visiting children lived directly across the street from a patient who had died of bulbar poliomyelitis in Cleveland City Hospital on Aug. 4, 1941.

4. Lovelace, W. R., II: Transportation of Patients by Airplane, Proc. Staff Meet., Mayo Clin. **16:** 221 (April 2) 1941.

Sponsored by the National Foundation for Infantile Paralysis, Inc.

From the Children's Hospital, Akron, Ohio, the Division of Contagious Diseases, City Hospital, and the Department of Pediatrics, Western Reserve University School of Medicine, Cleveland.

Special Article

GLANDULAR PHYSIOLOGY AND THERAPY

INTERNAL SECRETIONS OF THE GASTROINTESTINAL TRACT

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This special article is published under the auspices of the Council on Pharmacy and Chemistry. It is one of a series which will be published in book form as the second edition of "Glandular Physiology and Therapy." The opinions expressed in this article are those of the author and do not necessarily represent the views of the Council.—ED.

GASTRIC SECRETION—GASTRIN

The secretory response of the gastric glands to a meal is due in part at least to a humoral mechanism. This has been amply demonstrated by means of transplanted pouches of the stomach.[1] Just what proportion of the total secretory response is mediated humorally is difficult to determine. There is still no direct evidence to indicate what area or areas of the gastrointestinal tract are the site of action for the stimuli which give rise to the humoral phase. It has recently been shown,[2] contrary to earlier views, that the fundus is sensitive to chemical stimuli, although less so than the pyloric region. Whether a humoral mechanism is elicited from either area is not known.

The weak point in the gastrin theory has been the difficulty in demonstrating that the humoral secretion is due to a hormone rather than to the absorption of secretagogues or to vascular or circulatory changes. This demonstration is particularly important in the case of gastrin, since most gastric secretagogues are active on parenteral administration. Several types of evidence have been advanced in favor of the hormone theory. For example, histamine-free liver extracts perfused through the lumen of a pouch of the entire stomach will elicit gastric secretion, in doses much smaller than are required to produce a response on parenteral injection.[3] During the period of perfusion the extract is not appreciably absorbed. Although this evidence is suggestive of a hormone mechanism, it is not conclusive. It has never been shown specifically that agents acting solely in the stomach give rise to a humorally mediated secretion; local intrinsic reflexes may be involved, as suggested by the earlier observation that cocainization of the gastric mucosa renders it insensitive to chemical stimuli;[4] local vascular or circulatory changes have not been eliminated.

It has been shown that the feeding of broken bones or of pieces of rubber to dogs will produce pathologic

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3. Kim, M. S., and Ivy, A. C.: On the Mode of Action of Secretagogues (Liver Extract) in Promoting Gastric Secretion, Am. J. Physiol. **105:** 220 (July) 1933.

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hypersecretion eighteen hours later in dogs with completely denervated pouches.[5] Since the bones or rubber could not act by being absorbed, it has been suggested that they elicit a hormone response. However, the bones were fed with a meal, so that delayed gastric evacuation or obstruction may have permitted the absorption of secretagogues for many hours; since the pouches used retained their original vascular supply, circulatory changes are not ruled out.

The third type of evidence which has been used to support the hormone theory is that extracts of pyloric mucosa may be prepared which stimulate gastric secretion on parenteral injection. The active constituent of such extracts has been shown to be histamine, which has been isolated in the form of the crystalline picrate.[6] Careful assays of the histamine content of pyloric and fundic mucosa have revealed that the fundus contains the largest share of histamine as well as of gastric excitant,[7] yet, as previously mentioned, it is not the area most sensitive to chemical stimuli. The fact is now well known that histamine may be extracted from practically all tissues of the body, so that this evidence is not conclusive in favor of the theory that histamine is gastrin. Attempts to show that the histamine titer of the blood rises during digestion of a meal have been unsuccessful,[8] but this is not unexpected, since the quantity of histamine required to stimulate gastric secretion would be so diluted by the body fluids as to become unmeasurable. Furthermore, if it is maintained that histamine is the gastric hormone, one must conclude that atropine prevents the formation of this hormone, since investigators have repeatedly shown that atropine can abolish the gastric secretory response to a meal but not that to histamine.[9]

Recently it has been claimed that pyloric extracts free of histamine stimulate gastric secretion and that the action of such extracts is not affected by atropine.[10] Attempts to confirm this report in my laboratory and elsewhere have been unsuccessful.

PANCREATIC SECRETION—SECRETIN

Bayliss and Starling demonstrated clearly that pancreatic secretion is regulated by a hormone mechanism. This demonstration consisted in showing that a specific substance, hydrochloric acid, when introduced into a specific region of the digestive tract, the small intestine, stimulates the flow of pancreatic juice, that this action occurs independently of the nervous system and that the humoral agent is not absorbed hydrochloric acid but a specific substance which they were able to extract from the intestinal mucosa.[11] This substance was given the name "secretin." Since this time the humoral mechanism for pancreatic secretion has been conclusively demonstrated by the use of dogs with transplanted pancreas and transplanted intestinal loops.[12]

It is well known that many substances besides hydrochloric acid, including fats and the products of protein digestion, are capable of stimulating pancreatic secretion when admitted to the duodenum. It has been shown that they do not act by being absorbed from the intestine.[13]

A large number of investigators have prepared potent secretin, and within recent years two laboratories have obtained this substance in crystalline form.[14] However, its chemical structure has not yet been elucidated.

In addition to being a stimulant to the flow of pancreatic juice, secretin has been shown to be a true cholagogue, although the biliary response is considerably less than the pancreatic.[15] It is interesting in this regard that secretin is reported to stimulate the primitive hepatopancreas of the octopus.[16] Crystalline secretin has also been reported to stimulate the flow of intestinal juices.[17] Secretin, which is active on intravenous administration, produces little or no action when administered in any other way.

Within the last few years, a number of reports have been concerned with the use of secretin as a clinical test for pancreatic function.[18] In some of these investigations a commercial product which has recently become available has been employed. These investigations reveal that secretin produces the same effects in man as it does in animals; the volume of pancreatic juice and the concentration and output of bicarbonate are augmented, the outputs of the various enzymes are increased, although their concentrations are diminished, and the secretion of bile is promoted. The latter is not reflected in the duodenal drainage unless the gallbladder is incompetent or absent, or the sphincter of Oddi is relaxed. Attempts have been made to establish normal values for the test, and it is claimed that the procedure is a valuable aid in the diagnosis of pancreatic disease.

GALLBLADDER EVACUATION—CHOLECYSTOKININ

The ingestion of a meal has been repeatedly observed to cause the gallbladder to contract and evacuate.[19] Most effective in this regard are fatty substances and acids acting from the small intestine. The evacuation of the gallbladder is not appreciably affected by denervation, nor does electrical stimulation of the nerves of the organ produce more than slight and temporary effects in most animals. Further evidence for a humoral mechanism has been provided by cross circulation experiments in which the presence of hydrochloric acid in the duodenum of a donor dog causes evacuation of

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the gallbladder in a recipient dog.[20] Furthermore, a gallbladder transplanted into the neck of a dog will respond to the presence of acid in the duodenum.[21] Blood transfusion experiments, though equivocal, indicate the humoral nature of gallbladder evacuation in man.[22] It has been repeatedly shown that the humoral agent is not fat or other substances which might be absorbed from the intestine.[23] The implication that a hormone is involved has been substantiated by the successful preparation of intestinal extracts which activate the gallbladder in man as well as in experimental animals.[24] The hormone has been given the name "cholecystokinin." The evidence indicates that this hormonal mechanism is the chief stimulus for evacuation of the gallbladder.

Cholecystokinin, which has been separated from secretin, has not yet been obtained in pure crystalline form, nor has it been rendered available for clinical investigation. It is not active on oral or rectal administration.[25] The available evidence suggests that it relaxes the sphincter of Oddi.[26] The tone and degree of distention of the gallbladder have been shown to be important factors in determining the response of the organ to cholecystokinin.[27]

GASTRIC INHIBITION—ENTEROGASTRONE

That the ingestion of neutral fat inhibits gastric secretion and motility has been known since the last century. It has been repeatedly confirmed that this effect is elicited from the small intestine and not from the stomach.[28] Experiments with transplanted pouches of the stomach have shown that the inhibition is humoral in nature.[29] The possibility that absorbed products of digestion constitute the humoral agent has been excluded.[30] The substance concerned, which can be prepared from intestinal mucosa, has been shown to inhibit gastric motility of both the fasting and the digestive type and to inhibit gastric secretion stimulated by a meal, sham feeding or the injection of insulin or histamine.[31] The active principle of these extracts has been given the name "enterogastrone." This principle has not yet been obtained in pure crystalline form.

Recently several independent laboratories have reported that urine contains a gastric inhibitory substance.[32] This principle has been demonstrated in the urine of normal men and women, pregnant women, patients with various gastric disorders and normal, duodenectomized or gastrectomized dogs. The earlier extracts contained toxic impurities (pyrogenic substances) which exerted an inhibitory action on gastric secretion, but potent preparations free of these contaminants have now been obtained.[33] Such extracts have been shown to inhibit the secretory response of the human stomach to histamine.[34] Since the gastric inhibitory principle of urine has been differentiated from a number of other suspected substances, it has been given the name "urogastrone." That it may possibly represent excreted enterogastrone is suggested by the finding that it is excreted in increased quantities in the urine of fat-fed dogs and is absent from the urine of dogs from which the entire small intestine has been removed.[35] The gastric inhibitory principles, enterogastrone and urogastrone, probably offer greater therapeutic possibilities than the other gastrointestinal hormones.

INTESTINAL SECRETIONS—ENTEROCRININ

As long ago as 1902 it was shown that Brunner's glands in an isolated segment of duodenum will respond slightly to the ingestion of certain types of food, although locally acting stimuli are probably more effective.[36] More recently it has been reported that goats, pigs, cats and dogs with isolated duodenal segments exhibit in these segments an increase in the rate of secretion from Brunner's glands in response to feeding.[37] This has been confirmed in the case of the dog.[38] It was later claimed that this response to feeding could be obtained after cutting the vagi and splanchnic nerves and could be obtained from transplanted duodenal loops.[39] It has not been shown that the humoral agent is not some absorbed product of digestion. In support of the view that a hormone is concerned are the reports that impure preparations of secretin stimulate the secretion of Brunner's glands.[40] It has not been possible

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to establish that the accompanying increase of duodenal motility does not force out accumulated secretions from the duodenal loop.[38]

In the case of jejunal and ileal loops of intestine, which secrete succus entericus, the evidence is not so clear. Both chemical and mechanical stimuli are effective when applied directly to the loop. If the loop is spared all mechanical influences, usually no secretion results whether the animal is fasted or is fed. A rubber collecting tube in the lumen is sufficient to evoke continuous secretions, which, however, is scarcely affected by feeding the animal.[41] If local stimuli produce an obvious response and distant stimuli only a scarcely perceptible one, it is difficult to escape the conclusion that the latter are of relatively little physiologic significance.

Recently the secretion of succus entericus has been studied in greater detail.[42] In these experiments intestinal loops were transplanted beneath the skin. Following this the secretory response to a meal was studied before and after complete denervation, accomplished by severing the pedicle. The succus entericus was collected by means of a rubber tube in the lumen of the fistula. In a large series of experiments it was found that neither the volume nor the output of enzymes was augmented by feeding before denervation. Following denervation a 60 per cent increase in the volume of juice was observed in response to a meal, and a questionable enzyme response was obtained. A later study [43] of a similar nature showed a more clear-cut increase in the production of enzymes in the denervated fistula. These results have been interpreted to indicate that the secretory response of the intestine is augmented by removing the influence of inhibitory nerves and that a humoral mechanism is involved. Attempts by earlier workers to detect a response of the denervated or transplanted intestinal loop to feeding were unsuccessful.[44]

That the possible humoral agent may be absorbed products of digestion is suggested by the finding that peptones are active on parenteral and on oral administration.[45] On the other hand, evidence that a hormone is concerned has been obtained by preparing extracts of intestinal mucosa which stimulate the flow of succus entericus.[46] The active principle of these extracts, which has been given the name "enterocrinin," has been shown to be distinguishable from vasodilator substances, secretin and enterogastrone.

INTESTINAL VILLI—VILLIKININ

It has been reported that the ingestion of a meal greatly augments the movements of the intestinal villi. The early investigations emphasized the importance of local chemical and mechanical stimuli for evoking these movements, since the movements occurred only in intestinal segments to which chyme had descended.[47] However, a humoral mechanism was proposed as a result of the discovery that the introduction of hydrochloric acid into the duodenum would activate the movements of the villi of a jejunal segment which had been removed from the abdominal cavity and viviperfused by anastomosis with the external jugular vein and the carotid artery.[48] This was subsequently repeated successfully in experiments with cross circulation between two dogs.[49] An indication that the humoral agent is a hormone was provided by the claim that crude preparations of secretin on parenteral injection stimulated movements of the villi.[50] The active principle, which was shown to be distinguishable from histamine, choline, adenosine, secretin and cholecystokinin, has been given the name "villikinin." [51] Evidence for the physiologic significance of villikinin consists in the report that augmentation of the movements of the villi promotes intestinal absorption and that this action can be demonstrated in cross circulation experiments.[52]

None of the work on villikinin has as yet been confirmed. It has been reported that the introduction of hydrochloric acid into the duodenum failed to promote the absorption of dextrose from isolated intestinal loops in unanesthetized dogs.[53]

CARBOHYDRATE METABOLISM—DUODENIN—ISLET-STIMULATING HORMONE

During the past ten years or more there has accumulated a rather extensive literature in which claims are made that extracts of intestinal mucosa on parenteral or oral administration will lower the fasting blood sugar level of normal or of depancreatized dogs and of rabbits and will reduce the dextrose tolerance curve. These claims have been widely held to indicate the existence of a duodenal hormone which regulates the blood sugar level. It has also been claimed that the introduction of hydrochloric acid into the duodenum will likewise lower the fasting blood sugar level, although some investigators have maintained that this can be demonstrated only in the absence of the adrenal glands.[54]

Little effort has been made to establish the necessary requirement that the effect of the acid is mediated humorally or to provide evidence that the phenomenon would operate in normal animals as the result of the entrance of food into the intestine. With the intention of providing these essential links in the chain of evidence for the proposed hormone, attempts were first made to repeat the original experiments. It was found, however, that the presence of hydrochloric acid in the duodenum failed to lower the fasting blood sugar level of normal anesthetized or unanesthetized dogs or dogs with ligated adrenal glands.[55] Negative results were also obtained in attempts to improve intravenous dextrose tolerance or to reduce the hyperglycemic response to the absorption of dextrose, to the injection of epinephrine or to removal of the pancreas.[53] Finally, extracts of intestinal mucosa were prepared by a variety of methods which have been reported to yield the hypoglycemic substance, but none lowered the fasting blood

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sugar level of trained, unanesthetized dogs.[56] Throughout these investigations, critical examination of the earlier literature disclosed apparently adequate explanations for the contrary results reported by the previous investigators. The possibility, however, has not been excluded that the gastrointestinal tract may elaborate an "insulin synergist" which affects carbohydrate metabolism.

INTESTINAL MOTILITY

It has been repeatedly observed that segments of the small intestine still in normal continuity with the remainder of the intestine exhibit an increase in motility when the animal is fed.[57] This augmented activity may appear within several minutes after feeding. It occurs when food is admitted to the stomach through a gastrostomy, and it is not abolished by bilateral vagotomy. However, no one has been able to demonstrate this phenomenon in a loop of intestine removed from continuity with the rest of the intestine, whether the loop retains its nerve supply or is denervated, or is transplanted.[58] These observations practically rule out a hormonal mechanism and favor the view that local stimuli are of the greatest importance. It has been shown that local chemical and mechanical stimuli are very effective in evoking intestinal movements and that their action is abolished by local anesthetization of the mucosa.[59]

Certain intestinal extracts contain a substance which is neither histamine nor choline but which augments intestinal motility.[26] My co-workers and I have occasionally obtained enterogastrone preparations that have produced gastric motor inhibition followed by stimulation. With one such extract we were successful in isolating two fractions, one which produced inhibition only and one which produced stimulation only. However, until such time as some motor activity of the gastrointestinal tract has been shown to involve a humoral mechanism, such substances are of pharmacologic interest only. To attach physiologic significance to them at the present time is to advance an explanation for an unknown phenomenon.

SALIVARY GLANDS

There is no evidence indicating that an internal secretion is specifically concerned in the secretion of saliva.[60]

THERAPY

Although the internal secretions of the gastrointestinal tract are of great physiologic interest, none of them have been demonstrated to possess therapeutic value. Histamine, if it is gastrin, and secretin possess diagnostic value. Cholecystokinin is of potential diagnostic value. Enterogastrone and urogastrone possess therapeutic promise.

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Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

THEODORE G. KLUMPP, M.D., Secretary.

SOBISMINOL SOLUTION-CUTTER (See New and Nonofficial Remedies, 1941, p. 169).

The following additional dosage form has been accepted:

Sobisminol Solution-Cutter, 50 cc. Bottle: Each cubic centimeter contains 20 mg. of bismuth in the form of an aqueous solution containing approximately 50 per cent of propylene glycol and an organic bismuth compound obtained by the interaction of sodium bismuthate, triisopropanolamine and propylene glycol.

SULFANILAMIDE (See New and Nonofficial Remedies, 1941, p. 503).

The following dosage forms have been accepted:

Tablets Sulfanilamide, 1 grain.
Prepared by Flint, Eaton & Co., Decatur, Ill. No U. S. patent or trademark.

Tablets Sulfanilamide, 7.7 grains.
Prepared by Flint, Eaton & Co., Decatur, Ill. No U. S. patent or trademark.

Sulfanilamide Tablets, 7½ grains.
Prepared by Schieffelin & Co., New York. No U. S. patent or trademark.

SULFAPYRIDINE (See New and Nonofficial Remedies, 1941, p. 508).

The following dosage form has been accepted:

Tablets Sulfapyridine, 0.5 Gm. (7.7 grains).
Prepared by Flint, Eaton & Co., Decatur, Ill. No U. S. patent or trademark.

The following brand has been accepted:

SULFAPYRIDINE-UPJOHN.—A brand of sulfapyridine-N. N. R.

Distributed by The Upjohn Company, Kalamazoo, Mich. U. S. patent applied for. No U. S. trademark.
Tablets Sulfapyridine-Upjohn, 0.5 Gm. (7.7 grains).

SULFATHIAZOLE (See New and Nonofficial Remedies, 1941, p. 514).

The following dosage form has been accepted:

Tablets Sulfathiazole, 0.5 Gm. (7.7 grains).
Prepared by Flint, Eaton & Co., Decatur, Ill. No U. S. patent or trademark.

The following brand has been accepted:

SULFATHIAZOLE-UPJOHN.—A brand of sulfathiazole-N. N. R.

Distributed by The Upjohn Company, Kalamazoo, Mich. No U. S. trademark. U. S. patent applied for.
Tablets Sulfathiazole-Upjohn, 0.5 Gm. (7.7 grains).

EPHEDRINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1941, p. 245).

EPHEDRINE HYDROCHLORIDE-BREON.—A brand of ephedrine hydrochloride-U. S. P.

Manufactured by George A. Breon & Co., Inc., Kansas City, Mo.
"Caplets" Ephedrine Hydrochloride-Breon, 0.05 Gm. (¾ grain).

EPHEDRINE HYDROCHLORIDE-ENDO.—A brand of ephedrine hydrochloride-U. S. P.

Manufactured by Endo Products, Inc., Richmond Hill, N. Y.
Capsules Ephedrine Hydrochloride-Endo, ⅜ grain.
Capsules Ephedrine Hydrochloride-Endo, ½ grain.
Capsules Ephedrine Hydrochloride-Endo, ¾ grain.

THIAMINE HYDROCHLORIDE-MERRELL (See New and Nonofficial Remedies, 1941, p. 553).

The following additional dosage forms have been accepted:

Solution Thiamine Hydrochloride-Merrell, 10 mg. per cc., 10 cc. vials: Each cubic centimeter contains 10 mg. of thiamine hydrochloride, equivalent to 3,333 U. S. P. units, and 5 mg. of chlorobutanol in sterile distilled water.

Solution Thiamine Hydrochloride-Merrell, 50 mg. per cc., 5 cc. vials: Each cubic centimeter contains 50 mg. of thiamine hydrochloride, equivalent to 16,667 U. S. P. units, and 5 mg. of chlorobutanol in sterile distilled water.

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SATURDAY, SEPTEMBER 20, 1941

PARACELSUS AFTER FOUR HUNDRED YEARS

Four hundred years ago on September 24 one of the most controversial personalities in medical history, Philippus Aureolus Theophrastus Bombastus of Hohenheim, called Paracelsus, "exchanged life for death" in his forty-eighth year. Bombast was his family name. The word implying scorn was applied to him since the English Galenist Walter Harris used it in the sentence "thy Bombastick name shall be despised."

In his days and for centuries afterward Paracelsus was regarded as a boasting, uneducated charlatan, though he was graduated rightfully with the laurea in medicina at the Ateneo of Ferrara. He was described as an egotistic noisemaker, a drunken braggart, a devil worshiper. More moderate critics called him an eccentric fool, a zealotic halfwit, a superstitious visionary, a megalomaniac. Nevertheless he was an ingenious pathfinder for medicine and a physician of special originality and skill. The name of medical Luther too clung to him, though this was originally meant as a mockery. Hartmann [1] called him a most enlightened mind, a teacher for the future. A romantic doctor [2] who edited the collected works of Paracelsus in four volumes of a thousand pages each in modern German recommends his therapeutics for lupus and gout, even cancer, and the Deutsche Volksheilbewegung, patronized by the Nazis, demanded in 1936 the reversal of the present healing art according to the concepts of Paracelsus!

Sudhoff,[3] who for fifty years studied the problem and edited the authentic publications of Paracelsus in fifteen big volumes, made possible an evaluation of the work and the man. Sudhoff showed that up to 1658 not less than three hundred and ninety editions, reprints, collections and translations appeared of his writings, an impressive sign of the interest the works of Paracelsus had found. Most of them were not printed in the lifetime of Paracelsus, owing to the influence of his adversaries. Spurious publications misused the attraction of his name and adulterated his teachings. Strunz,[4] Hartmann,[5] Achelis [6] and Netzhammer [7] in America and in England Stillman,[8] Stoddard,[9] Waite [10] and Ferguson [11] have helped to reassess the personality, the accomplishments and the influence of this not always pleasing yet upright character.

As for his ethical standards, Paracelsus had vowed "I shall never cede from my medical work as long as God favors me with this mission. I shall oppose all false medicine and teachings. I shall love the sick more than myself, not take recompense that I do not deserve. I shall advise the careworn, look after the melancholic." He scorned physicians promenading in cloaks of silk and gloves, wearing chains and rings of gold instead of going in suitable attire into the laboratory to augment their knowledge.

More difficult to appraise are the accomplishments he attained scientifically. He must have been a most successful practitioner; from all parts of Europe came requests for his help in severe cases from high ranking personalities. He apparently had that "God given faculty" of an intuitive therapist combined with broad practical knowledge. Yet he openly admitted that he was "not always capable of giving at once an opinion; such was customarily pretended only by the 'humoral' physicians." If anybody, it was he who treated the diseased individual; yet he composed objective descriptions of particular diseases: of hospital gangrene; of syphilis in its variability, its infectiousness and its hereditability; of the tartaric, i. e. the stone, diseases, which he explained as the effect of precipitations as he observed them in his chemical experiments; of cretinism due to goiter in the parents; of miners' diseases (independently of his contemporary Agricola). St. Vitus's dance, St. Anthony's fire, mental diseases he declared were caused not by any saints or demons but by natural influences: "Local decay or decay of the organs of expulsion generate disease." Psychic therapy he consciously applied: "There are physicians who have the power to overcome diseases by their will power." In surgery he approached the

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11. Ferguson, J.: Bibliotheca Chemica, Glasgow, J. Maclehose & Sons, 1906. Paracelsus, in Encyclopedia Britannica, ed 14, New York, Encyclopedia Britannica, Inc., 1929, vol. 17, p. 251.

aseptic ideal: "Keep the wounds clean, probe, cut, saw as little as possible, and they will heal." His "Grosse Wundarznei" is mostly concerned with avoiding operation. His laboratory activity raised alchemy to chemistry. "Alchemy is to make neither gold nor silver but the supreme essences and to direct them against diseases." He propagated the application of minerals: "Nothing is a poison in itself; all depends on the proper preparation, dosage and indication." To ascribe character, sickness and other destinies to the influence of heavenly bodies he regarded as superstition, a ridiculous tale of the astrologers: "The course of Saturn lengthens or shortens nobody's life; a child owes nothing to star constellations but all to his parents." All this was progressive and to us seems good and reasonable. But in his time it was rebellion against the dogmas in medicine which doctors had to follow strictly. Paracelsus used the first opportunity when as a teacher at the University of Basel he could divulge his ideas to throw fierce invectives against the then all powerful scholastic system of medical education. His declaration of war was followed by hostile steps of the faculty, students, doctors and apothecaries, whom in retort he assailed for their ignorance, hypocrisy, exploitation and killing of patients, at the same time extolling his superiority: "Ye Avicenna, Galen, Rhazes, ye Suevia, Vienna, Cologne, ye Italy, Greece, Arabia, Israelita, after me, not I after you," he called out; "the time will come when all of you will be a contempt to the world. Mine will be the monarchy!"

The church granted him, apparently in recognition of his genuine piety and charity, honorable interment notwithstanding his caustic invectives against pope, cleric and ceremonies of the church and his rejection of every authority. For a long time the medical world could not shake off the wrath against his heresy. It even broadened because his ideas reached far wider circles after his death, when his works, so far mostly existing only in handwriting, in the majority not his own but of disciples to whom he used to dictate late in the night, were finally published. Yet this scientist believed in magic, though he condemned it. "Perforating the wax image of a man will cause him pain on the corresponding place," he wrote. He described, like plants or minerals, real and natural spirits living in water, air, earth and fire, not mixing with one another and dying if they come into the other elements. Rationalism and mysticism blended curiously in him. He accomplished a series of extraordinary advances which in themselves would rank him among the great physicians. The greatness of his strife for the highest spiritual achievements and the tragedy of the shortcoming of an indefatigable will against the unattainable attracted such poets as Goethe [12] and Browning; [13] they appraised him as a symbol of the deep yearning of humanity.[14] Medicine must concede historic importance to him, but "the science of the coming centuries" cannot "grow on his soil."

12. Bartscherer, A.: Paracelsus, Paracelsisten und Goethe Faust, Dortmund, Fr. Wilh. Ruhfus, 1911.

13. Browning, Robert: Paracelsus, 1833. Denison, C. P.: The Paracelsus of Robert Browning, New York, Baker & Taylor Company, 1911.

RENAL FAILURE IN CRUSH INJURIES

Cases recently reported in the *British Medical Journal* [1] indicate what appears to be a new syndrome: fatal renal failure after crushing of the limbs by fallen débris. Here is a typical history: The patient has been buried for several hours with pressure on a limb or limbs. On admission to the hospital his condition may be good, the pulse and blood pressure normal. There is swelling of the limb, some local anesthesia and wheals. The edema spreads along the limb or limbs, movements of the limbs become limited or absent, and there may be various sensory disturbances, such as anesthesia, hyperesthesia or paresthesia. The hemoglobin is raised; a few hours later the blood pressure falls and shock ensues. This may be successfully combated by transfusions of serum, plasma or blood. The urine, however, diminishes and contains albumin and many dark brown and black granular casts. The patient is alternately drowsy and anxious. There is thirst and excessive vomiting. The blood urea and potassium become progressively higher, and death occurs within a week. Necropsy reveals necrosis of muscle and, in the renal tubules, degenerative changes and casts containing brown pigment. The casts on microscopic examination appear to be composed not of red cells but of desquamated epithelial cells, the pigment being probably due to hemoglobin excreted into the lumen from the blood stream. The gross and microscopic appearance of the kidney resembles the kidney of mismatched transfusion. There was, however, no clinical evidence of a transfusion reaction, and plasma samples taken seventeen and forty hours after transfusion showed no increased color. Furthermore, Mayon-White and Solandt [1] report a fatal case with identical lesion in the kidney in which blood transfusion was not given. Bywaters and Beall point out that this condition has not occurred in any of 24 shocked and injured patients without severe muscle crush treated in their hospital by blood or serum transfusion. The only common etiologic factor in all the reported cases appeared to be muscle necrosis. The rise in serum potassium noted in all of the cases may be explained on the basis of increased permeability of injured muscle and the more rapid escape of intercellular ions. The Medical Research Council Committee on Traumatic Edema has collected

14. The Paracelsus collection of the St. Louis Medical Society contains a rich set of original works of and publications on Paracelsus (Robert E. Schlüter collection). Catalogue of it has been published (Bull. Hist. Med. **9**: 545 [May] 1941).

1. Bywaters, E. G. L., and Beall, D.: Crush Injuries with Impairment of Renal Function, Brit. M. J. **1**: 427 (March 22) 1941. Beall, D.; Bywaters, E. G. L.; Belsey, R. H. R., and Miles, J. A. R.: A Case of Crush Injury with Renal Failure, ibid., p. 432. Mayon-White, R., and Solandt, O. M.: A Case of Limb Compression Ending Fatally in Uremia, ibid., p. 434.

11 reports of such cases, 6 of which proved fatal, while recovery occurred in 5.

In an effort to explain the mechanism of renal failure it was assumed that toxic substances are formed in the damaged muscle and that these, on release of compression, pass into the circulation and eventually damage the kidneys. In 1 instance early amputation of the affected limb failed to save life, while in the others recovery took place without amputation. The therapeutic attempts were directed toward dilution of the toxins and promotion of diuresis, while adrenal cortex extract was given to check the rise of blood potassium.

Patey and Robertson [2] thought that the syndrome might be due not to liberated autolytic bodies from damaged muscles but to a loss of substances from the circulation into the affected limb on the release of compression. This would readily explain the shock and possibly the renal failure as a secondary manifestation of shock. If this is true, large intravenous injections of plasma or serum would tend to increase the loss of blood constituents into the damaged limb with subsequent increase in edema. The logical procedure seemed to be to prevent this leakage of fluid from the circulation. These authors treated 2 cases by applying intermittent positive pressure up to 60 mm. of mercury to the edematous area, using a specially large blood pressure cuff. In both cases there was a greatly increased output of urine, softening and later disappearance of edema, a fall in the blood urea to normal and recovery.

Current Comment

THE RISING TREND OF THE 1941 BIRTH RATE

According to the Bureau of the Census,[1] after falling steadily for two centuries the long range United States birth rate has turned sharply upward. Provisional tabulations for 1940 showed over 91,000 more births in that year than in 1939. The birth rate per thousand of population jumped from 17.3 to 17.9. Moreover, during the first four months of 1941 about 20,000 more babies were born in the United States than in the first third of 1940. The Census Bureau statisticians predict, therefore, a rate of 18.5 for 1941, or only 0.3 of a baby less than the last reported (1937) rate in Germany. If present birth and death rates continue, it is pointed out, the population of the United States will increase approximately 7 per cent in a generation. This is an interesting forecast, but it must be recalled that the Census Bureau has within the past six months in connection with the decennial census also pointed out that if the present birth and death rates continue the population of the United States will fail to maintain its numbers by approximately 4 per cent in a generation. As has been noted in editorials in THE JOURNAL, such narrow swings when not associated with any evidence of clearcut biologic change in fertility must be interpreted with extreme conservatism in whichever direction they occur, unless long continued, and cannot be considered as testimony on which the future trend can be adequately foretold.

2. Patey, David H., and Robertson, J. Douglas: Compression Treatment of Crush Injuries of Limbs, Lancet **1**: 780 (March 22) 1941.

1. The Registrar, Department of Commerce, Bureau of the Census **6**, July 15, 1941.

EFFECT OF ROENTGEN RAYS ON ENZYMES

The assumption that roentgen rays and gamma rays affect enzymes only when the dose is enormous is based largely on the results of radiation on crude enzyme preparations. Since cell division is inhibited by radiation doses which have been reported to have little or no destructive action on enzymes, it has been concluded that the inhibition is produced by a process in which enzymes do not play an important part. The availability of a number of enzymes in highly purified form has made possible a careful reinvestigation of the effect of roentgen rays on enzymes, and the data obtained require a revision of ideas regarding the resistance of enzymes to radiation. Dale [1] has examined the effects of roentgen rays on crystalline carboxypolypeptidase and on partially purified polyphenoloxidase. In dilute solutions, relatively small doses of radiation, considerably below those used normally in radiotherapy, produce inactivation of both these enzymes. The degree of inactivation of each enzyme is a function of the concentration of the enzyme for a given dose of irradiation. In the case of carboxypolypeptidase it has been demonstrated that a definite amount of radiation energy absorbed corresponds to a constant amount of enzyme inactivated. As a result of this fact, the inactivating dose of roentgen rays decreases with decreasing concentration of the enzyme to levels far below those normally used in radiotherapy. Furthermore, the inactivation of carboxypolypeptidase does not take place when the enzyme is acting on its substrate during irradiation, whereas the enzyme irradiated under the same conditions without its substrate is inactivated to the extent of 85 per cent. It is apparent from these data that previous unsuccessful efforts to obtain an effect of irradiation, except in enormous doses, on enzymes was due to the use of too impure enzyme preparations and the failure to employ sufficiently dilute enzyme solutions. The fact that two different types of enzymes were affected similarly in the study mentioned adds significance to the data and suggests that other enzymes may respond to radiation in a similar manner. It is apparent that the destructive action of roentgen rays on tissues, frequently described as an indiscriminate effect on all living tissues causing a massive physical-chemical change in the protoplasm, may be considerably more subtle. The concentration of a particular enzyme in the tissue, its state in the tissue during irradiation and the extent to which the enzyme is a limiting factor in cell metabolism are probably factors in determining the degree of radiosensitivity of various cells.

1. Dale, W. M.: Biochem. J. **34**: 1367 (Nov.) 1940.

MEDICAL PREPAREDNESS

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession.

THE MEDICAL PROFESSION AND THE CIVILIAN DEFENSE PLAN

DONALD GORDON, M.D.
NEW YORK

When nations go to war, the medical profession is used as the salvage corps to return the human victims of war's destruction to the fighting line of defense. In peace the medical profession acts as a salvage corps to return the victims of civilian casualties to their homes, families and work, always trying to reduce the economic loss to a minimum. Our government has the great task of organizing a civilian defense plan, hitherto not deemed necessary because of our apparently isolated geographic position. This plan, under the able directorship of Mayor Fiorello LaGuardia of New York and his committee members, is well under way.

The medical profession, organized and trained in the special field of salvaging victims of civil and battle casualties, has opened to it through this emergency an opportunity to show again its loyal service. It is the duty of every medical man to put forth his best effort to support this plan. Our profession might be likened to an army division to which may be assigned not only the physical welfare of the disaster victims but the health and well-being of all active members of the plan who are participating in every activity pertaining to its accomplishment.

Wars have furnished the medical profession a field for experience in the study of trauma, disease and sanitation, which it has been able to apply in civil life with success. In turn the doctor, taking this war experience into civil life, has by study and application of its principles developed better ways to handle the civilian casualties and furnish improved methods for dealing with the casualties of subsequent wars, as has been demonstrated in the present conflict.

In the main there is little difference between the varying degrees of civil casualties and those caused by wartime devices of destruction. Our civil casualties go on forever. Each year the nation's civil casualties overshadow the war mortalities and morbidity.

There has never been a time in this country when the doctor has had an equal opportunity for unity with the public and the state in placing the care of the injured on so large and efficient a basis. Owing to the fact that there will be so many of the citizens of the nation made aware of their responsibility for the mutual welfare of their fellow beings, if they are adequately trained in the first principles of the prevention of accidents and sickness, the transportation and care of the injured, and sanitation, benefit should immediately arise. Furthermore, this improvement should not be allowed to be a temporary one. It should furnish a nucleus for the establishment of a plan of similar procedure for the future, after the present emergency has passed. The medical profession can approach the support of this plan with the knowledge that it is one of the great opportunities to prepare for the future by extended effort in its support.

The American Red Cross for many years has trained citizens of this country to render skilled first aid to victims of civil casualties. It has taught procedures that have been standardized through many years of experience in disaster and war. It has taught the citizens the simple principles requisite to prevent shock, arrest hemorrhage, minimize infection by covering wounds, the desirability of splinting fractures before moving the victim of an accident, the importance of not moving a victim except from a hazardous position and, if this has to be done before medical aid, to do so in a way which will avoid further injury to the victim. It has taught the need of obtaining immediate medical care and furnishing the doctor with important facts of the injury. The national Red Cross gives a certificate only to those who have taken courses given by an accredited first aid instructor trained in Red Cross methods.

Every doctor, therefore, who might be called on to teach first aid should see that he becomes an accredited instructor, lest his students be deprived of a certificate. When this is not practical, the physician should take it on himself to see that the first aid courses in his community are given by accredited Red Cross instructors or those assigned by the defense plan to teach Red Cross first aid, and that they follow the Red Cross manual procedures.

First aid as taught by the Red Cross to lay persons is not medical treatment. Only by adherence to such guidance can the confusion be avoided which naturally would arise when incomplete and unstandardized methods might conflict with medical opinion. The problem is largely one for the doctor.

By utilizing these principles, trained groups will in the future be in a position to lower the mortality incident to trauma and render comfort and health to innocent victims of civilian accidents. Furthermore, such a plan would always afford a reserve of trained experienced citizens and physicians to meet any subsequent emergency which might arise.

In the application of the defense plan, one should keep in mind that to help is to use one's skill as a member of a team, not to inject personality other than use it to be helpful to a team mate. Conflict can be avoided only in this way. No plan is perfect; anything that has ever been done is not ideal. The purpose is to aid in getting the best out of the material at hand. When this has afforded experience, better things can be done.

DENTAL PREPAREDNESS

Abstract of a Report of the Committee on Dental Preparedness of the American Dental Association

MILITARY AND CIVIL DENTAL NEEDS OF THE NATION

The administrators of the Selective Service system concluded that the resources of dentistry should be conserved as far as possible. In order to ensure the greatest economy of dental resources it issued, under date of May 12, a memorandum to all state directors (1-99) which contained the following significant statement: "Although the War Department reports that there are now sufficient officers in the Dental Corps Reserve to meet their current requirements, . . . it is apparent that there is an overall and increasing national shortage of dentists. Further, the supply is not distributed in accordance with the population, so that consequently there are present shortages in some local board areas, while on the other hand there are present surpluses in other local areas. However, any such surpluses may be substantially reduced and even wiped out entirely by reason of the requirements of the armed forces and the increased civilian requirements." The memorandum continued: "The local board has the problem of deciding, subject to appeal, whether or not an individual dentist is so necessary to a community that he should be deferred from training and service under the provisions of paragraph 350-353 of the Regulations. This problem should be approached with a clear appreciation of the overall national shortage, and with the health needs of the community clearly in mind. In classifying, the local board should give full weight to the fact that the Dental Reserve Corps is at present of sufficient strength to fill current Army needs." Prior to the issuance of this memorandum, it was brought to the attention of the Dental Preparedness Committee, by its State Military Affairs Committee, and so reported to the Congress by this committee, that approximately one hundred dentists had been inducted into the service as privates. Since the foregoing memorandum was issued by Selective Service, few dentists have been inducted.

To alleviate the situation with respect to the inducted dentists, the War Department paralleled the action of Selective Service by the issuance of the following Directive dated May 5, under the signature of the Adjutant General:

> Individuals who are qualified for appointment in the Dental Corps Reserve who have been inducted under the provisions of the Selective and Service Training Act of nineteen-forty should be encouraged to apply for appointment in order that they may serve in a professional capacity. Individuals accepted for appointment will be discharged and ordered to extended active duty for a period of twelve consecutive months.

While there may be some necessary delay in the issuance of commissions to the qualified dentists applying for commissions under the provisions of the foregoing directive, the committee is reliably informed that every effort is being made to expedite each case so that commissions may be awarded as promptly as possible.

DENTAL RESERVE OFFICERS

As a result of the call of dental reserve officers to active service and the induction of a limited number of dentists as privates, the public is faced with the loss of dental service, owing to reduction of dental personnel in certain areas of the United States which can ill afford such losses. It is therefore obvious that some dentists with reserve commissions are being called who could better serve the defense needs of their country by continuing in civilian practice. This presents a difficult situation that requires careful thought and action. In preparing a solution to the question, it must be remembered that men who have commissions in the Dental Reserve Corps accepted them in order that they might be of service to their country in time of national emergency. It is doubtful, however, whether many gave due consideration to the civilian needs of their respective communities and to the loss to these communities in the event that the dentist was called to active service. Naturally, some of them are now in a dilemma and are undecided how to serve their country best. On the other hand, the War, Navy and other departments have had these men on their reserve lists for years and have seen to it that they received periodic instructions in military procedures, and when the national emergency arose they naturally turned to those resources for the most likely material available to meet emergency needs.

The Committee on Preparedness is of the opinion that this difficult situation should be met realistically. If a dentist is needed greatly in his home community, and this extreme need should be definitely determined by careful study irrespective of whether the dentist has a reserve commission or not, he should be deferred and another reservist ordered to active duty in his place. This course seems logical and equitable, since the War and Navy departments have pointed out that their reserve corps quota is currently more than sufficient to meet the needs. If later the Dental Reserve Corps personnel becomes dangerously low, it is believed that an appeal for volunteers would bring an immediate response. The committee does not advocate the plan that reservists resign their commissions to serve in civilian capacities. The national emergency might become so great that eventually it would be necessary to call them again to active service.

After carefully reviewing all phases of the situation, the committee concluded that the coordination of the military groups and Selective Service is desirable in order to achieve the greatest good for all concerned. In an effort to bring about a better situation, the committee suggests the following procedures for consideration and action:

1. That Selective Service continue its efforts to prevent the induction of dentists in a nonprofessional capacity in order that the "overall and increasing national shortage of dentists" be curtailed.

2. That local Selective Service boards maintain the normal or increased flow of dentists into the profession by continuing to defer predental and dental students, as recommended by General Hershey in his memorandum of May 12.

3. That the War Department continue to commission as promptly as possible all inducted and qualified dentists in accordance with the directive of the Adjutant General of May 5.

4. That the War and Navy departments, through their corps areas or districts or as they may otherwise determine, consider carefully the relation of population needs to dental facilities of each community from which a reserve officer is to be called, so that no community in the United States may be deprived of adequate dental personnel.

5. If a dental reserve officer is regarded as necessary to his community but feels that he would prefer to serve under his commission, or that he would be of more value to his country in that capacity, every effort should be made by the dentist himself and the state military affairs committee to see that adequate dental personnel is made available to compensate for his loss to the community. The practice of the dentist should be safeguarded in a form similar to that outlined in bulletin 13, issued by the Dental Preparedness Committee.

6. That state military affairs committees and local dental societies cooperate effectively with Army corps area dental surgeons and commandants of the Navy, in the study of each community within the area, to the end that the best situation may be developed to meet the military and civilian needs of the nation. While it is realized that the solution of this problem is not strictly a responsibility of the Army or Navy, and no undue hardship on individuals is intended because of their already exacting duties, yet the corps area dental surgeons and commandants of the naval districts could make a distinct contribution to the civilian population needs by reporting to state military affairs committees any lack of civilian dental personnel surrounding their respective camps and districts.

The committee urges all chairmen to get in touch with the corps area surgeons and commandant on matters of importance and warns against bringing outside political pressure to bear, as was done in a recent case. The relationships existing between the central committee, the state military affairs committees, corps area surgeons, commandants, Washington Army and Navy headquarters and Selectice Service are splendid, and all these matters can be satisfactorily adjusted within the various agencies involved.

ARMY RESERVE OFFICERS ORDERED TO ACTIVE DUTY

FIRST CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, First Corps Area, which comprises the states of Maine, Vermont, New Hampshire, Rhode Island, Massachusetts and Connecticut:

ALLEN, RICHARD E., 1st Lieut., Cranston, R. I., Fort Ethan Allen, Vt.
AFTER, Harry, 1st Lieut., Hartord, Conn., Fort Devens, Mass.
ASHERMAN, Edward G., 1st Lieut., Ogunquit, Maine, Fort Williams, Maine.
BARCOMB, Albert E., 1st Lieut., Rochester, N. H., Fort Devens, Mass.
BLACKWELL, Claude C., 1st Lieut., Boston, Camp Edwards, Mass.
BLANEY, Cyril C., 1st Lieut., Westford, Mass., Fort Rodman, Mass.
BOUCHER, Reginald H., 1st Lieut., North Providence, R. I., Fort H. G. Wright, N. Y.
DUNSTAN, Paul L., 1st Lieut., Howard, R. I., Camp Edwards, Mass.
EDMONDSON, Richard E., 1st Lieut., Hartord, Conn., Camp Edwards, Mass.
FERGUSON, Duncan H., Jr., 1st Lieut., Pawtucket, R. I., Fort Banks, Mass.
FERRARA, Berardino F., 1st Lieut., Providence, R. I., Camp Edwards, Mass.
FOLEY, James V., 1st Lieut., Cambridge, Mass., Camp Edwards, Mass.
FREEMAN, John J., 1st Lieut., Newington, Conn., Fort Ethan Allen, Vt.
GLADSTONE, Robert W., 1st Lieut., Pittsfield, Mass., Fort Devens, Mass.
GLENN, William W. L., 1st Lieut., Boston, Fort Devens, Mass.
HELMAN, Milton E., 1st Lieut., Chelsea, Mass., Camp Edwards, Mass.
HOWARD, Donald O., 1st Lieut., Boston, Fort Devens, Mass.
HUBBARD, Edward O., Jr., 1st Lieut., Peterborough, N. H., Camp Edwards, Mass.
MAGNER, John P., 1st Lieut., West Rutland, Vt., Fort Devens, Mass.
METZGAR, John G., 1st Lieut., Augusta, Maine, Fort Williams, Maine.
MILLER, George F., 1st Lieut., Dorchester, Mass., Camp Edwards, Mass.
O'LEARY, James J., Jr., 1st Lieut., Jamaica Plain, Mass., Fort Rodman, Mass.
POPOFF, Constantine, Lieut. Col., Haverhill, Mass., Fort Devens, Mass.
ROTTENBERG, Louis A., 1st Lieut., Brookline, Mass., Fort Banks, Mass.
SANDER, Hermann N., 1st Lieut., Manchester, N. H., Fort Devens, Mass.
SAVAGE, Edward G., 1st Lieut., Sharon, Mass., Fort Banks, Mass.
SMITH, Jasper A., 1st Lieut., Boston, Camp Edwards, Mass.
STARBUCK, George W., 1st Lieut., Boston, Camp Edwards, Mass.
WALKER, Edmund F., 1st Lieut., Worcester, Mass., Fort Devens, Mass.
WELLS, Ralph H., Captain, Lexington, Mass, Camp Edwards, Mass.

Orders Revoked

CHIAMPA, Francis P., 1st Lieut., Brighton, Mass.
FOLEY, James V., 1st Lieut., Cambridge, Mass.
FREEMAN, John J., 1st Lieut., Newington, Conn.
O'LEARY, James J., Jr., 1st Lieut., Jamaica Plain, Mass.

SECOND CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Second Corps Area, which comprises the states of New York, New Jersey and Delaware:

ANDRICK, Eugene A., 1st Lieut., Hohokus, N. J., Mitchel Field, N. Y.
COLLINS, Stuart V., 1st Lieut., Alleghany, N. Y., Reception Center, Camp Upton, N. Y.
CRISP, Joseph C., 1st Lieut., Asbury Park, N. J., Fort Jackson, S. C.
DEYOE, Daniel H., Captain, Niskayuna, N. Y., Trenton Induction Station, Trenton, N J.
GILLMAN, Isidore, 1st Lieut., Brooklyn, Fort McClellan, Ala.
GOTTLIEB, Norman T., 1st Lieut., Brooklyn, Camp Shelby, Miss.
GUALTIERI, Rosario, 1st Lieut., Astoria, L. I., N. Y., Camp Stewart, Ga.
HURTES, Harold C., 1st Lieut., Brooklyn, General Dispensary, New York.
JARRETT, William Armistead, 1st Lieut., New York, Camp Grant, Ill.
KNUDSEN, Arnold F., 1st Lieut., Brooklyn, General Dispensary, New York.
LEVIN, Jack, 1st Lieut., Freehold, N. J., Fort Jackson, S. C.
MAGIDAY, Morton, 1st Lieut., New York, Recruiting and Induction Service, Headquarters 2d Corps Area.
MASOR, Nathan, 1st Lieut., Brooklyn, 4th Armored Division, Pine Camp, N. Y.
NADVORNEY, Leo, 1st Lieut., New York, 12th Infantry, Fort Dix, N. J.
NATHANSON, Norman, 1st Lieut., Long Branch, N. J., Fort Jackson, S. C.
PALANKER, Harold, 1st Lieut., Buffalo, Fort Jackson, S. C.
RIDER, Thomas, 1st Lieut., West Albany, N. Y., Fort Hancock, N. J.
RUMORE, Peter C., 1st Lieut., Brooklyn, Fort Jackson, S. C.
RYAN, Jeremiah E., 1st Lieut., New York, Station Hospital, Pine Camp, N. Y.
SCHNITTKE, Sidney M., 1st Lieut., New York, Camp Shelby, Miss.
SCHWARTZ, Charles I., 1st Lieut., Jersey City, N. J., Fort Du Pont, Del.
SERVOSS, Spencer J., 1st Lieut., Medina, N. Y., Madison Barracks, N. Y.
SEWALL, Arthur D., 1st Lieut., Bridgeton, N. J., Station Hospital, Fort Dix, N. J.
SHARLIN, Herbert S., 1st Lieut., Newark, N. J., Station Hospital, Pine Camp, N. Y.
STIEFEL, Frederick H., 1st Lieut., Brooklyn, 8th Division, Fort Jackson, S. C.
STONEHILL, Alfred A., 1st Lieut., Weehawken, N. J., Fort Dix, N. J.
TOBEY, Howard C., 1st Lieut., Elizabeth, N. J., Recruiting and Inductive Service, 39 Whitehall Street, New York.
WITT, Norman H., 1st Lieut., Dobbs Ferry, N. Y., Madison Barracks, N. Y.

Orders Revoked

CARRUTHERS, Roderick J., 1st Lieut., Fort Ontario, N. Y.
DURR, Walter J., 1st Lieut., Fort Dix, N. J.
HERO, Byron A., 1st Lieut., Gander, Newfoundland.

THIRD CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Third Corps Area, which comprises the states of Pennsylvania, Virginia, District of Columbia and Maryland:

AMBROSE, Edward Phelps, Jr., 1st Lieut., Radford, Va., Camp Lee, Va.
BELBER, Joseph Paul, 1st Lieut., Philadelphia, Fort Belvoir, Va.
BLANK, Samuel, 1st Lieut., Philadelphia, Camp Claiborne, La.
CHOLLAK, Joseph Paul, 1st Lieut., Edwardsville, Pa., Indiantown Gap Military Reservation, Pa.
FORMAN, Simon Benjamin, 1st Lieut., Philadelphia, Camp Claiborne, La.
FRANK, Irving Leslie, 1st Lieut., Philadelphia, Camp Claiborne, La.
FRANTZ, Robert Ritchie, 1st Lieut., Philadelphia, Camp Claiborne, La.
FREEMAN, Irving, 1st Lieut., Baltimore, Fort Belvoir, Va.
FRIEDMAN, Paul Sigmund, 1st Lieut., Philadelphia, Indiantown Gap Military Reservation, Pa.
GALLAGHER, Robert James, 1st Lieut., Yeadon, Pa., Indiantown Gap Military Reservation, Fa.
GOLDSMITH, Charles Porter, 1st Lieut., Catasauqua, Pa., Camp Claiborne, La.
GOODMAN, Howard, Captain, Towson, Md., Camp Claiborne, La.
GOWEN, Leo Francis, 1st Lieut., Philadelphia, Fort Belvoir, Va.
GRATZ, Morton M., 1st Lieut., Appomattox, Va., Camp Claiborne, La.
GRIER, George Smith, III, 1st Lieut., Baltimore, Fort Eustis, Va.
HUDSON, Victor Talmadge, 1st Lieut., Bethlehem, Pa., Fort Eustis, Va.
JACOBSON, Benjamin Dee, 1st Lieut., New Cumberland, Pa., Camp Claiborne, La.
JONES, Donald Emerson, 1st Lieut., Mount Pleasant, Pa., Fort Eustis, Va.
KANICH, Joseph John, Captain, Richmond, Va., Fort Oglethorpe, Ga.
KATZMAN, Howard, Captain, Washington, D. C., Camp Lee, Va.
KNOTTS, Frank Louis, 1st Lieut., Baltimore, Fort Belvoir, Va.
KRISCH, Kube, 1st Lieut., Philadelphia, Camp Claiborne, La.
KULCZYCKI, Edward, 1st Lieut., Scranton, Pa., Camp Claiborne, La.
KULCZYCKI, John, Jr., Captain, Richmond, Va., Camp Blanding, Fla.
LEVIN, Herman Harry, 1st Lieut., New Castle, Pa., Camp Claiborne, La.
LIEBER, Maurice Franklin, 1st Lieut., Washington, D. C., Camp Claiborne, La.
LONG, Joseph Pote, 1st Lieut., Roaring Spring, Pa., Fort Belvoir, Va.
MATSKO, Stephen Edmund, 1st Lieut., McAdoo, Pa., Indiantown Gap Military Reservation, Pa.
McCARTHY, William Charles, 1st Lieut., Crafton, Pa., Indiantown Gap Military Reservation, Pa.
McCALL, George Winford, 1st Lieut., Baltimore, Fort George G. Meade, Md.
MALKIN, Samuel Harold, Captain, Bedford, Va., Camp Claiborne, La.
MARGOTTA, Victor James, 1st Lieut., Dunmore, Pa., Camp Claiborne, La.
MILLER, George William, III, 1st Lieut., Philadelphia, Indiantown Gap Military Reservation, Pa.
MILLER, Samuel George, 1st Lieut., Pittsburgh, Fort George G. Meade, Md.

O'DONNELL, Thomas Francis, 1st Lieut., Salisbury, Md., Camp Claiborne, La.
PUTNAM, Henry Mitchell, 1st Lieut., Philadelphia, Fort George G. Meade, Md.
ROSENBAUM, Armand Leonard, 1st Lieut., Philadelphia, Indiantown Gap Military Reservation, Pa.
SCHEIE, Harold Glendon, Captain, Philadelphia, Camp Lee, Va.
SCHMIDT, James Ross, 1st Lieut., Abington, Pa., Camp Lee, Va.
SCHREIBER, John Otto, 1st Lieut., Washington, D. C., Fort Eustis, Va.
SINGER, Solomon, 1st Lieut., Jonesville, Va., Camp Claiborne, La.
TAYLOR, Morgan Fitch, 1st Lieut., Susquehanna County, Pa., Indiantown Gap Military Reservation, Pa.
TISHERMAN, Robert Carl, Captain, Pittsburgh, Indiantown Gap Military Reservation, Pa.
TORIN, Jack Earle, 1st Lieut., Russellton, Pa., Fort Story, Va.
TROXEL, Richard Scotlar, 1st Lieut., Allentown, Pa., Indiantown Gap Military Reservation, Pa.
VAN BUSKIRK, Kryder Evans, 1st Lieut., Pottstown, Pa., Indiantown Gap Military Reservation, Pa.
WARD, George Hugh, 1st Lieut., Clairton, Pa., Indiantown Gap Military Reservation, Pa.
WILLIAMS, Robert Hilton, 1st Lieut., Baltimore, Fort Eustis, Va.
WUNSCH, Joseph John, 1st Lieut., Scranton, Pa., Indiantown Gap Military Reservation, Pa.
ZERBE, Robert Bruce, 1st Lieut., Tremont, Pa., New Cumberland, Pa.
ZEMAN, Erwin Doehren, 1st Lieut., Erie, Pa., Camp Lee, Va.

Orders Revoked

SORRELL, William George, 1st Lieut., Amelia, Va.
WEINBERG, Tobias, 1st Lieut., Baltimore.

FOURTH CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Fourth Corps Area, which comprises the states of Tennessee, North Carolina, South Carolina, Alabama, Georgia, Mississippi, Florida and Louisiana:

ADAIR, Morgan C., 1st Lieut., Atlanta, Ga., Fort Bragg, N. C.
ALLGOOD, James E., 1st Lieut., Inman, S. C., Camp Stewart, Ga.
ATKINSON, Robert H., 1st Lieut., Water Valley, Miss., Fort Jackson, S. C.
DAVIDOFF, Theodore, 1st Lieut., DeRidder, La., Fort Jackson, S. C.
ESTES, Harry M., 1st Lieut., Nashville, Tenn., Camp Wheeler, Ga.
FABBRICANTE, Salvatore, 1st Lieut., Morton, Miss., Fort Bragg, N. C.
GENGELBACH, Robert D., 1st Lieut., Alexandria, La., Fort Benning, Ga.
GIBSON, Francis D., Jr., 1st Lieut., Gibson, N. C., Fort McClellan, Ala.
GRAFFAGNINO, Peter C., 1st Lieut., New Orleans, Fort Benning, Ga.
HALFORD, Richard F., 1st Lieut., Miami, Fla., Fort McPherson, Ga.
HAWKINS, William C., 1st Lieut., Asheville, N. C., Headquarters 4th Corps Area, Office of Surgeon, Atlanta, Ga.
HODSDON, Edward E., 1st Lieut., Miami, Fla., Fort Benning, Ga.
HOLLAND, Ned W., 1st Lieut., New Orleans, Fort Jackson, S. C.
JOYNER, Rayburn N., 1st Lieut., Marianna, Fla., Fort Bragg, N. C.
LOVE, Carruthers, 1st Lieut., Memphis, Tenn., Fort Bragg, N. C.
MARINO, Joseph B., 1st Lieut., New Orleans, Fort Benning, Ga.
MOSELEY, Charles M. J., 1st Lieut., New Orleans, Fort Benning, Ga.
MUELLER, Camillo F., Captain, New Orleans, Fort McClellan, Ala.
PORTER, Arthur R., Jr., 1st Lieut., Memphis, Tenn., Fort Bragg, N. C.
ROBERTS, Edward H., 1st Lieut., Choccolocco, Ala., Fort Jackson, S. C.
ROPER, C. James, 1st Lieut., Jasper, Ga., Fort Jackson, S. C.
SORRELLS, John E., 1st Lieut., Iowa, La., Fort Benning, Ga.
WILKINS, Samuel B., Jr., 1st Lieut., Athens, Ga., Fort Jackson, S. C.
WILLIS, Charles A., 1st Lieut., Woodbine, Ga., Fort Benning, Ga.

Orders Revoked

ALLEN, Benjamin L., 1st Lieut., Spartanburg, S. C.
BARKSDALE, Irving S., Captain, Greenville, S. C.
BLUM, Joseph E., Jr., 1st Lieut., Greenwell Springs, La.
BROOK, Clarence Loe, 1st Lieut., Tuscaloosa, Ala.
CENTER, Abraham H., 1st Lieut., Savannah, Ga.
DAVIDOFF, Theodore, 1st Lieut., DeRidder, La.
DAVIS, Frank M., 1st Lieut., Corinth, Miss.
DUNSTAN, Paul Lane, 1st Lieut., Atlanta, Ga.
ERWIN, J. W., 1st Lieut., Blountville, Tenn.
FABBRICANTE, Salvatore, 1st Lieut., Morton, Miss.
GACHET, Fred Smith, 1st Lieut., Lakeland, Fla.
GENGELBACH, Robert D., 1st Lieut., Alexandria, La.
GLEASON, Albert H., 1st Lieut., Umatilla, Fla.
HARRIS, William T., 1st Lieut., Troy, N. C.
HICKMAN, Walter B., 1st Lieut., Louisville, Miss.
HOLLOWAY, Charles T., 1st Lieut., Charleston, S. C.
HOLMES, Verner S., 1st Lieut., McComb, Miss.
LEVY, Morton Lee, 1st Lieut., Jonesville, La.
LOVETT, Raymond E., 1st Lieut., New Orleans.
McEVITT, William G., 1st Lieut., Madisonville, Tenn.
MARCY, John O., 1st Lieut., Bristol, Tenn.
MILLER, John Marion, 1st Lieut., Augusta, Ga.
RAMSEY, Russell Wiest, 1st Lieut., Winter Park, Fla.
RAWLS, Jack Larche, 1st Lieut., Bastrop, La.
RHAME, Delmar O., Jr., 1st Lieut., Clinton, S. C.
SOSKIS, Elbert J., 1st Lieut., Mulberry, Fla.
TALBOT, Joe Dudley, 1st Lieut., New Orleans.
TILLMAN, George C., Major, Gainesville, Fla.
WEINSTEIN, Albert, Major, Nashville, Tenn.
WEINSTEIN, Bernard M., Captain, Nashville, Tenn.
WILLIAMS, Harvey McL., 1st Lieut., Aberdeen, Miss.

FIFTH CORPS AREA

The following additional medical reserve corps officers have been ordered to duty by the Commanding General, Fifth Corps Area, which comprises the states of Ohio, West Virginia, Indiana and Kentucky:

ARLOOK, Theodore D., 1st Lieut., Elkhart, Ind., Fort Knox, Ky.
BOOTH, Thomas E., 1st Lieut., Louisville, Ky., Fort Knox, Ky.
DOCTER, Luebert, 1st Lieut., Toledo, Ohio, Fort McClellan, Ala.
DUNN, David D., 1st Lieut., Cleveland, Fort Hayes, Ohio.
DWORKIN, Harry, 1st Lieut., Cincinnati, Fort McClellan, Ala.
FARRIS, Jacob T., 1st Lieut., Richmond, Ky., Fort Knox, Ky.
GLASSMAN, Daniel, 1st Lieut., Charleston, W. Va., Fort Thomas, Ky.
GUSTAFSON, Milton H., 1st Lieut., Cleveland, Baer Field, Fort Wayne, Ind.
HERZBERG, Mortimer, Jr., 1st Lieut., Cincinnati, Fort Knox, Ky.
JASKIEWICZ, Casimir F., 1st Lieut., Huntington, W. Va., Fort Knox, Ky.
KELLER, Bayard M., 1st Lieut., Cuyahoga Falls, Ohio, Fort Hayes, Ohio.
KING, G. Arthur, Major, Cincinnati, Fort George G. Meade, Md.
KNICKERBOCKER, Thomas W., 1st Lieut., Cleveland, Fort Hayes, Ohio.
LAMBER, Chester K., Captain, Indianapolis, Fort Benjamin Harrison, Ind.
LATTA, John D., 1st Lieut., Jerusalem, Ohio, Fort McClellan, Ala.
LAWS, Kenneth F., 1st Lieut., Lafayette, Ind., Fort Knox, Ky.
LESER, Ralph U., 1st Lieut., Indianapolis, Fort Benjamin Harrison, Ind.
LEYRER, Ralph H., 1st Lieut., Hamilton, Ohio, Camp Forrest, Tenn.
LIGHT, Richard C., 1st Lieut., Lima, Ohio, Fort Knox, Ky.
McCUNE, Elmer T., 1st Lieut., Sebring, Ohio, Fort Knox, Ky.
MORRISON, William H., 1st Lieut., Howe, Ind., Fort Knox, Ky.
O'DELL, Morris H., 1st Lieut., South Charleston, W. Va., Fort Knox, Ky.
ORT, Milton R., 1st Lieut., Columbus, Ohio, Fort Knox, Ky.
PASTERAK, Alexander J., 1st Lieut., Indianapolis, Fort Knox, Ky.
SCHILLER, Herbert A., 1st Lieut., South Bend, Ind., Fort Knox, Ky.
SCHUKNECHT, Harold F., 1st Lieut., Mishawaka, Ind., Fort Knox, Ky.
STANTON, Eugene J., 1st Lieut., Elyria, Ohio, Fort McClellan, Ala.
STEVENS, Robert H., 1st Lieut., Louisville, Ky., Fort Knox, Ky.
TATUM, Joseph C., Captain, Lexington, Ky., Fort Hayes, Ohio.
THOMAS, James J., 1st Lieut., Alliance, Ohio, Fort Knox, Ky.
TYLER, George P., Jr., Major, Ripley, Ohio, Fort George G. Meade, Md.

NAVY PERSONNEL CHANGES

The Navy Department has announced the following changes in station for officers of the Medical Corps:

ALLEN, Jesse W., Captain, from the Naval Hospital, Annapolis, Md., to Norfolk Naval Hospital, Portsmouth, Va.
DAVIS, Oscar, Captain, from the Norfolk Naval Hospital, Portsmouth, Va., to the U. S. Naval Academy, Annapolis, Md.,
PORTER, John E., Captain, from the Naval Hospital, San Diego, Calif., to the Navy Dispensary, Long Beach, Calif.
THOMAS, Griffith E., Captain, from the Staff, Commander-in-Chief, Pacific Fleet, to Assistant District Medical Officer, 11th Naval District, San Diego, Calif.
THOMPSON, George D., Captain, from the Naval Air Station, Anacostia, D. C., to the Naval Air Station, Trinidad, British West Indies.
WHITEHEAD, Ely L., Captain, from Norfolk Naval Hospital, Portsmouth, Va., to the Naval Hospital, Philadelphia.

ORGANIZATION SECTION

MEDICAL LEGISLATION

DISTRICT OF COLUMBIA

Bills Introduced.—S. 1897, introduced by Senator McCarran, Nevada, proposes to abolish the office of coroner and to establish the office of medical examiner for the District of Columbia. H. R. 5516, introduced by Representative Schulte, Indiana, proposes to permit the importation into the District of Columbia of cream produced and handled in accordance with the provisions of the United States Public Health Service Milk Ordinance.

MEDICAL BILLS IN CONGRESS

Change in Status.—H. R. 5146 has passed the House and Senate, authorizing an additional appropriation for the purchase of a site on which to construct a new building for the Army Medical Library.

Bills Introduced.—H. J. Res. 229, introduced by Representative Bloom, New York, proposes to grant permission to Dr. Hugh S. Cumming, Surgeon General (retired) of the United States Public Health Service, to accept certain decorations bestowed on him by the republics of Colombia, Haiti and Chile. H. R. 5531, introduced by Representative Andresen, Minnesota, proposes to authorize the Secretary of Agriculture to provide rules and regulations for the handling of animals and their products in interstate and foreign commerce when such animals are known to be infected with infectious, contagious or communicable diseases. H. R. 5535, introduced by Representative Knutson, Minnesota, proposes to amend the Selective Training and Service Act to provide that each member of each local board shall receive as compensation for his services $5 for each day on which he performs board duties and in addition receive travel expenses at the rate of 5 cents a mile and subsistence expenses while away from his official station on duties of the board. H. R. 5635, introduced by Representative Kennedy, New York, proposes to amend the Selective Training and Service Act to provide that in time of peace any person who has entered on attendance for any academic year (1) at any college or university which grants a degree in arts or science, to pursue a course of instruction satisfactory completion of which is prescribed by such college or university as a prerequisite to either of such degrees; or (2) at any such university to pursue a course of instruction in the pursuit of which a degree in arts or science is prescribed by such university as a prerequisite, and who, while pursuing such course of instruction at such college or university, is selected for training and service under this act prior to the end of such academic year shall, on his request, be deferred from induction into the land or naval forces until the end of the academic year.

WOMAN'S AUXILIARY

California

Members from the San Diego, Riverside and Los Angeles County auxiliaries attended an all day conference of the first and second councilor districts in Los Angeles, April 25. Mrs. A. E. Anderson, state auxiliary president, assisted by Mrs. G. W. Coon and Mrs. Franklin Farman, district councilors, presided. Discussions on how to improve the auxiliary and the auxiliary's most important work were led by Mrs. Coon, Mrs. Ralph M. Smith, Mrs. R. Emerson Bond and Mrs. Ralph B. Eusden. Dr. L. A. Alesen, secretary of the Los Angeles County Medical Association, spoke on the relationship of the auxiliary to the medical association. Medical Information, Please, the San Diego auxiliary's panel discussion plan of presenting a health program, was outlined briefly by Mrs. Bond, quiz leader, and Mrs. E. H. Christopherson, Mrs. Charles Rees and Mrs. Hal G. Kelley, taking the place of doctors around the quiz table. Mrs. Willard Newman of San Diego read her monologue, "The Doctor's Wife at the Telephone."

One hundred and thirty-three members and guests of the Los Angeles County auxiliary gathered in Pasadena to hear Mrs. Thomas G. Winter, head of the Community Service Department of the Motion Picture Producers and Distributors of America, talk on "Pictures and the Political Crisis."

During a luncheon meeting of the San Diego auxiliary, Mrs. E. M. MacKay gave a report of the work done by Dr. Dorothy Smyle, who is director of medical supplies of the British War Relief Association of Southern California.

Florida

At the annual meeting in Jacksonville, April 28-30, of the woman's auxiliary to the state medical society, the president, Mrs. Gordon H. Ira, presided. Mrs. Victor A. Hughes, president of the auxiliary to the Duval County Medical Society, gave the welcoming address. The following officers were installed: Mrs. W. J. Barge, Miami, president; Mrs. F. W. Krueger, Jacksonville, and Mrs. R. L. Cline, Lakeland, vice presidents; Mrs. Paul Kells, Miami, corresponding secretary; Mrs. C. H. Murphy, Bartow, recording secretary-treasurer; Mrs. M. J. Flipse, Miami, historian, and Mrs. L. C. Ingram, Orlando, parliamentarian.

New York

The June meeting of the Columbia County auxiliary was held at the home of Dr. and Mrs. John L. Edwards in Hudson. The president, Mrs. Robert L. Bowerhan of Copake, presided. A letter of appreciation was read from the board of directors of the Physicians Home for the $10 recently contributed. The sum of $317 was realized from the dance given by the auxiliary for the benefit of the Hudson branch of Bundles for Britain.

The auxiliary was hostess at a tea given in honor of the graduating class of the school of nursing of the Hudson City Hospital.

On June 24 the Erie County season closed with the annual guest day. Mr. James A. Whitmore, manager of the Buffalo City Planning Association, was the speaker. Mrs. William Rennie was general chairman of the event. There were prizes for golf and cards in the Meadowbrook Golf and Country Club.

Sponsored by the Saratoga auxiliary, a mental health institute was held on May 22 at the Saratoga Springs High School Auditorium. Mrs. T. E. Bullard, president of the auxiliary, introduced Dr. Thomas J. Goodfellow, chairman of the advisory board, who presided. Drs. Frances E. Vosburgh and D. Ewen Cameron were speakers at the evening session, which was attended by 300 persons; Dr. M. D. Duby, vice president of the Saratoga County Medical Society, was chairman. Drs. Kathryn L. Scholtz and Frederick L. Patry, were the evening speakers.

Wisconsin

At a dinner for 22 members and 4 guests of the Fond du Lac County auxiliary at the home of Mrs. J. J. Sharpe of Fond du Lac in February Mrs. A. W. Hammond of Beaver Dam discussed "Mothercraft." Mrs. Hammond is Mothercraft Chairman of the Wisconsin Federation of Women's Clubs, and also president of the neighboring Dodge County medical auxiliary.

The Rock County auxiliary met on February 25 at Janesville. How the social service department of the Wisconsin Anti-Tuberculosis Association functions was told comprehensively by Miss Meta Bean, Milwaukee, its director in Wisconsin for fourteen years. Mrs. H. E. Gasten, of Beloit, president of the auxiliary, presented the Pinehurst Sanatorium, where the meeting was held, with a picture shower, gifts of the members.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Fellowships in Obstetrics.—The Alabama State Department of Public Health, in cooperation with the Children's Bureau of the U. S. Department of Labor, announces fellowships in public health obstetrics for physicians who have had a minimum of a year's rotating internship and one year of obstetric training. Training provided will embrace field work in already established maternity clinics in rural areas, in the organization of new centers and rotating through the various departments and projects connected with the obstetric aspects of public health. A stipend of $150 a month plus travel while in the field is provided. Applications should be sent to Dr. James N. Baker, state health officer, Montgomery.

ARKANSAS

Changes in Health Officers. — Dr. Mason G. Lawson, Benton, has been appointed health officer of Miller County, Texarkana.——Dr. Albert S. J. Clarke, Ozark, has been transferred to Monticello to be health officer of Drew County and Dr. Lynwood B. Jones, formerly in Monticello, has been changed to Ozark as health officer of Franklin County.

CALIFORNIA

Changes in Medical School Staff. — The University of California Medical School, San Francisco, announces the following promotions, among others:

David M. Greenberg, Ph.D., to professor of biochemistry.
Dr. Frederic C. Bost, associate clinical professor of orthopedic surgery.
Dr. Keene O. Haldeman, associate clinical professor of orthopedic surgery.
Dr. Daniel G. Morton, associate professor of obstetrics and gynecology.
Dr. Eric Ogden, associate professor of physiology.
Dr. C. Allen Dickey, assistant clinical professor of ophthalmology.
Dr. John M. Graves, assistant clinical professor of dermatology.
Charles Gurchot, Ph.D., assistant professor of pharmacology.
Dr. David O. Harrington, assistant clinical professor of ophthalmology.
Dr. Clayton D. Mote, assistant clinical professor of medicine.
Dr. Charles A. Noble Jr., assistant clinical professor of medicine.
Dr. Frederick G. Novy Jr., assistant clinical professor of dermatology.
Dr. Allan Palmer, assistant professor in obstetrics and gynecology.

CONNECTICUT

Personal. — Dr. Joseph I. Linde, health officer of New Haven, who was appointed to complete the unexpired term of the late Dr. James Stephen Maher on the State Tuberculosis Commission, has now been appointed to a regular term of six years by Governor Hurley.

State Committee on Nutrition.—A state committee on nutrition for national defense has been appointed in Connecticut with Mrs. Marion E. Dakin, nutritionist of the University of Connecticut, Storrs, chairman. Among the members are Drs. David Gaberman, Hartford, and John C. Rowley, West Hartford, and George R. Cowgill, Ph.D., New Haven. Among the committee's objectives will be the organization of local committees throughout the state and the dissemination of educational material.

Dr. Allen Receives Baly Medal.—Edgar Allen, Ph.D., professor and chairman of the department of anatomy, Yale University School of Medicine, New Haven, has been awarded the Baly Medal of the Royal College of Physicians, London, in recognition of his work on estrogens. Dr. Allen was born in Canon City, Colo., in 1892. He received his Ph.D. degree at Brown University, Providence, R. I., in 1921. He was on the staff of Brown University from 1913 to 1917 and investigator for the U. S. Bureau of Fisheries at Woods Hole, Mass., in the summer of 1919 and at Fairport, Iowa, in the summer of 1922. He was instructor and associate in anatomy at Washington University School of Medicine, St. Louis, 1919-1923; professor of anatomy at University of Missouri, 1923-1933, associate dean, 1929-1930, and dean, 1930-1933. He went to Yale as professor in 1933. The medal is awarded on the recommendation of the president and council of the college for work in the science of physiology, especially during the two years immediately preceding the award.

FLORIDA

Chattahoochee Valley Meeting.—Dr. Herbert E. White, St. Augustine, was elected president of the Chattahoochee Valley Medical Association at its forty-first annual meeting in Jacksonville in August, succeeding Dr. Frank K. Boland, Atlanta. Other officers chosen at this time include Drs. David Henry Poer, Atlanta, and Dan C. Donald, Birmingham, Ala., vice presidents, and Robert B. McIver, Jacksonville, secretary-treasurer, reelected. Clinics and papers made up the scientific program. At the annual banquet Dr. Frederick J. Waas, Jacksonville, was toastmaster, and Dr. Clayton E. Royce, Jacksonville, delivered the W. J. Love Memorial Address, entitled "The Approach." Birmingham was selected for the 1942 meeting.

ILLINOIS

District Meeting. — The quarterly meeting of the Iowa-Illinois Central District Medical Association was held in Moline, September 11. Dr. David B. Freeman, Moline, discussed "Epithelioma of the Lower Lip" and Dr. Ralph A. Kinsella, St. Louis, "Endocarditis." Dr. Louis J. Karnosh, Cleveland, will address the meeting in Davenport, Iowa, December 10, on "Radical Methods in the Treatment of Melancholia."

New Divisions in State Health Department.—Because of expanded activities, the state department of health has created the division of public health nursing and the division of maternal and child hygiene, with separate administrative units. This work was formerly carried out in a combined division of child hygiene and public health nursing. The division of public health nursing will be in charge of Miss Maude Carson, R.N., chief supervising nurse, who has been chief supervising nurse in the department since 1936, and Dr. Grace S. Wightman, Springfield, will be chief of the new division of maternal and child hygiene. The latter division will supervise maternity hospitals and promote maternal, infant, child and school health programs, while the division of public health nursing will be responsible for the technical supervision of all nurses employed by the state department, promote the development of local public health nursing services and offer guidance and assistance to local units.

Chicago

Refresher Courses. — The Eye and Ear Research Fund announces a refresher course in the fundamentals (anatomy and pathology) of otorhinolaryngology, which is intended for candidates for the American Board of Otolaryngology. The course will be given at the Illinois Eye and Ear Infirmary and at the Illinois Research and Educational Hospital, Wednesday October 8, from 8 a. m. until 5 p. m. and on October 9-12 during evening hours. A two day course in practical gonioscopy will be given at the infirmary, October 24-26. Additional information may be obtained from Dr. Robert Henner, Illinois Eye and Ear Infirmary, 904 West Adams Street, Chicago.

Argentine Radiologist Honored.—Dr. José A. Saralegui, professor of radiology and physical therapy in the Faculty of Medical Sciences of Buenos Aires and director of the Municipal Institute for Radiology and Physical Therapy, Buenos Aires, was guest of honor at a dinner at the University Club on July 28. Among those present at the dinner were Drs. Hollis Potter, James T. Case, Max Cutler, Benjamin H. Orndoff, Milton G. Schmitt, John S. Coulter, Col. Joseph E. Bastion, medical corps, U. S. Army, and Mr. Brian Doble. Dr. Saralegui is visiting the United States at the invitation of the Department of State. According to information from the department he was a founder of the Argentine Society of Radiology and Electrology, is chief of radiology and physical therapy in the Rivadavia Hospital, editor of the radiology section of the *Revista de la Asociación Médica Argentina*, and has been secretary of the Argentine Medical Association. He arrived July 14.

IOWA

Professor Retires. — Dr. Andrew H. Woods, since 1928 medical director of the psychopathic hospital and professor and head of the department of psychiatry, State University of Iowa College of Medicine, Iowa City, has retired, having reached the official retirement age.

Personal.—Dr. Ralph H. Heeren has resigned as assistant professor of hygiene and preventive medicine at the State University of Iowa College of Medicine, Iowa City, to accept a similar position at the Tulane University of Louisiana School of Medicine, New Orleans. —— Dr. Elmer B. Mountain has been elected president of the American Mutual Life Insurance Company of Des Moines, it is reported.

KENTUCKY

New Health Unit.—Dr. Jack C. Haldeman, recently health officer of Wasco County, Ore., with headquarters in The Dalles, has been appointed to take charge of a new health unit in Christian County.

Society News.—Drs. Joseph E. Hamilton, Louisville, and Alice L. Wakefield, Anchorage, addressed the Jefferson County Medical Society, Louisville, September 15, on "Newer Applications of Peritoneoscopy and a New Instrument to Aid the Procedure" and "Cineplastic Amputation of Right Arm" respectively.——Dr. Rettig Arnold Griswold, Louisville, discussed "Wounds of the Heart" before the Society of Physicians and Surgeons, Louisville, September 18.

MARYLAND

Hospital News.—A new medical library was recently presented to the South Baltimore General Hospital by the Soroptimist Club of Baltimore.—— The Veterans Administration Facility at Perry Point held its annual play festival and award day exercises on September 7.

Vaccination Against Tick Fever Urged.—The Baltimore County Health Department urged persons who are likely to encounter ticks to submit to vaccination against tickbite fever, August 16, and simultaneously announced two cases of the fever reported in the county during the week, according to the Baltimore *Sun*. In both instances the patients were boys who frequent wooded areas. They live in opposite ends of the county. Many members of the boys' families were vaccinated against tickbite fever, although none had showed illness at the time of this report, it was said. The health department also announced arrangements with the county roads department for the vaccination of workmen on the roads as a protection to employees who are exposed to ticks in the course of their daily work.

MASSACHUSETTS

Personal.—Lieut. Comdr. James C. White, U. S. Navy Medical Corps, assistant professor of surgery, Harvard Medical School, Boston, recently went to London as medical observer for the Navy, the New York *Times* reported.——Dr. Charles F. Wilinsky, director of Beth Israel Hospital, Boston, received the honorary degree of master of arts from Harvard University, June 19.

Chemist Receives Cancer Award.—Louis F. Fieser, Ph.D., Sheldon Emery professor of organic chemistry, Harvard University, Cambridge, has received the Katherine Berkan Judd prize of the Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York. The prize carries an honorarium of $1,000. Dr. Fieser is the first American to win the award, it was announced. According to the citation, the prize was awarded for "his outstanding contribution in the proof of the active and inactive positions in the molecules of the chemical carcinogens." Dr. Fieser received his Ph.D. degree at Harvard in 1924 and has been teaching there since 1930.

MICHIGAN

Dr. MacNider Lectures at Michigan.—Dr. William deB. MacNider, Kenan research professor of pharmacology, University of North Carolina School of Medicine, Chapel Hill, delivered three lectures July 29-31, on "Acquired Resistance of Tissue Cells," under the auspices of the department of materia medica and therapeutics of the University of Michigan Medical School, Ann Arbor. The subjects of his lectures were "Repair of Tissue and Tissue Resistance," "The Aging Process and Tissue Resistance" and "The Adjustability of the Life Process to Injurious Agents."

MINNESOTA

Courses for Continuation Study. — *Minnesota Medicine* announces a series of courses to be given during coming weeks at the Center for Continuation Study, University of Minnesota, Minneapolis. In medicine the group includes electrocardiography, September 22-27; diseases of the rectum and colon, September 29-October 4; traumatic surgery, September 29-October 4; radiology of the head and neck, November 3-5; sulfonamide therapy, November 10-12; urology, November 10-12, and diseases of infancy and childhood, December 15-20.

Survey of Maternal Mortality. — The Minnesota State Medical Association and the state board of health are cooperating in a statewide survey of maternal mortality, which started August 1. The survey will consist of field studies of the case histories of all maternal deaths by an obstetrician sent out from the state board of health and an analysis of the case studies by a committee of physicians. This committee, appointed by the state medical association, is composed of Drs. Russell J. Moe, Duluth, chairman; Jennings C. Litzenberg, Adelbert Louis Dippel and Viktor O. Wilson of Minneapolis; Everett C. Hartley, St. Paul; Robert D. Mussey, Rochester; William H. Rumpf Jr., St. Cloud; William F. Mercil, Crookston, and Byron O. Mork, Worthington. The survey was prompted by recognition of the low maternal death rate now prevailing in Minnesota, according to *Minnesota Medicine*. The state rate for 1940 of 2.2 deaths per thousand live births is the lowest ever recorded and compares with the rate of 6.2 maternal deaths per thousand live births. In this survey, physicians are urged to report immediately to the state board of health all deaths connected with pregnancy.

MISSOURI

New Hospital Commissioner. — Dr. Frank M. Grogan, since 1934 superintendent of City Sanitarium, St. Louis, has been named hospital commissioner of St. Louis. He succeeds Dr. Ralph L. Thompson, who resigned. Dr. Grogan graduated at St. Louis University School of Medicine in 1925.

Dr. Baumgarten Named Secretary of State Society.—Dr. Walter Baumgarten, St. Louis, was elected secretary of the Missouri State Medical Association at a meeting of the council, July 20. He is also editor of the *Journal* of the state society. Mr. Elmer H. Bartelsmeyer is executive secretary.

NEVADA

State Medical Meeting at Elko.—The thirty-eighth annual meeting of the Nevada State Medical Association will be held in Elko, September 26-27, under the presidency of Dr. Henry A. Paradis, Sparks. The speakers will be:

Dr. Merrill C. Mensor, San Francisco, Tuberculosis of the Long Bones.
Dr. Nymphus Frederick Hicken, Salt Lake City, Diagnosis and Management of Breast Lesions.
Dr. Miley B. Wesson, San Francisco, Recent Advances in Urology.
Dr. Ralph C. Pendleton, Salt Lake City, Some Aspects of Surgical Care.
Dr. Warren H. Cole, Chicago, Gallbladder Disease.
Dr. Nelson J. Howard, San Francisco, Acute Diseases and Injuries of Tendons.
Dr. John Vernon Cantlon, Reno, Ulceration of the Leg.
Dr. David B. Wilsey, Elko, The Mental Picture in the Climacteric.
Major Robert A. Bier, M. R. C., U. S. Army, Washington, D. C., The Physician and National Defense.

NEW YORK

Fall Postgraduate Courses. — The council committee on public health and education of the Medical Society of the State of New York announces fall courses arranged for county medical societies. A course on traumatic surgery will be presented before the Steuben County Medical Society, Bath, beginning October 2 and continuing Thursdays until November 13, with the following speakers: Drs. Henry H. Ritter, Carl A. Peterson, Willis W. Lasher, Emmett A. Dooley, Walter D. Ludlum Jr. and Ernest W. Lampe, all of New York. A course on allergy is scheduled for the Medical Society of the County of Queens, October 9 and three succeeding Thursdays, with lectures by Drs. William B. Sherman, Beatrice M. Kesten, Albert Vander Veer and William Cook Spain. The council committee also arranged a lecture for the Medical Society of the County of Westchester, White Plains, September 10, by Dr. Eugene R. Marzullo on "Practical Considerations of Blood Dyscrasias." Another will be given, November 12, by Dr. George H. Roberts Jr., Brooklyn, on "Recent Advances in Therapeutics."

New York City

The Ledyard Fellowship.—Announcement is made of the Lewis Cass Ledyard Jr. Fellowship, which is awarded annually by the New York Hospital and Cornell University Medical College. The fellowship, amounting to approximately $4,000, will be awarded to an investigator in the fields of medicine and surgery or in any closely related field. Of the amount $3,000 will be applied as a stipend and $1,000 for supplies or expenses of the research. Preference will be given to younger applicants who are graduates in medicine and who have demonstrated fitness to carry on original research of high order. The recipient will be required to submit reports of his work either at stated intervals or at the end of the academic year. The research is to be carried on at the New York Hospital and Cornell University Medical College. Applications for the year 1942-1943 should be in the hands of the committee by December 15. They should be addressed to the Committee of the Lewis Cass Ledyard Jr. Fellowship, the Society of the New York Hospital, 525 East Sixty-Eighth Street.

NORTH CAROLINA

Changes in Health Officers.—Dr. Benjamin M. Drake, Kenansville, has resigned as health officer of Duplin County to accept a position in the Moore County health department, it is reported.——Dr. Milner C. Maddrey, health officer of Roanoke Rapids, resigned, July 1, and Dr. Robert M. Bardin, Roanoke Rapids, was appointed to succeed him.

Society News.—Drs. Archibald A. Barron and Lester C. Todd addressed the Mecklenburg County Medical Society, Charlotte, September 16, on "Review of Functions of the Frontal Lobes" and "Allergenic Excitants in Pneumococcic Colds" respectively.——Dr. Bernhard H. Hartman, Asheville, addressed the Buncombe County Medical Society, Asheville, August 18, on "Abdominal Pain in Children."

OHIO

Society News.—Dr. John A. Toomey, Cleveland, addressed the Summit County Medical Society, Akron, September 9, on anterior poliomyelitis.——Dr. Claude E. Forkner, New York, addressed the Academy of Medicine of Cleveland, September 19, on "Diagnosis and Treatment of the Anemias."

Appointments to Industrial Commission Staff.—The following physicians have been appointed to the staff of the State Industrial Commission, according to the *Ohio State Medical Journal:* Drs. James H. Boyer, Hillsboro; Frank T. Sheehan, Benjamin Arnoff, Charles E. Cassaday, Columbus, and Harry Sherman, Warrensville.

PENNSYLVANIA

Society News.—Mr. Harold Fishbein, Kane, addressed the Washington County Medical Society at a meeting at the Nemacolin Country Club, September 10, on "The Nonmedical World —A Diagnosis."——Dr. Charles F. Geschickter, Baltimore, addressed the Harrisburg Academy of Medicine, September 16, on "Diseases of the Breast."——Dr. Francis T. O'Donnell, Wilkes-Barre, chairman of the child health committee of the Medical Society of the State of Pennsylvania, discussed anterior poliomyelitis and the work of the committee at a meeting of the Dauphin County Medical Society, Harrisburg, September 2.

Philadelphia

Society News.—Dr. Albert C. Furstenberg, Ann Arbor, Mich., was the guest speaker at the inaugural meeting of the Philadelphia County Medical Society, September 17, on "Acute Infections of the Cervical Region." Dr. Louis H. Clerf was installed as president to succeed Dr. Edward L. Bortz.

Dr. Long Visits South America.—Dr. Esmond R. Long, director of the Henry Phipps Institute for the study, treatment and prevention of tuberculosis, is visiting South America on a travel grant awarded by the U. S. Department of State. Dr. Long was invited by the government of Colombia to come to Bogotá as adviser on the building of a tuberculosis hospital and was later invited to Panama, Costa Rica and Venezuela to lecture on tuberculosis.

TENNESSEE

Personal.—Dr. Franklin H. Alley, recently assistant superintendent of the Davidson County Tuberculosis Hospital, Nashville, has been appointed director of the Oakville Sanatorium, Oakville, a Shelby County institution. He succeeds Dr. James A. Price, who recently retired.

Society News.—Drs. Henry M. Carney and Burnett W. Wright, Nashville, addressed the Davidson County Medical Society, Nashville, September 2, on "Carcinoma of the Colon" and "Obstructive Uropathies" respectively.——Dr. Cecil E. Newell, Chattanooga, addressed the Hamilton County Medical Society, Chattanooga, September 4, on "Fibromas of the Ovary."——Speakers at a meeting of the Memphis and Shelby County Medical Society, August 5, included Drs. Carroll C. Turner on "Gonorrheal Myelitis" and Thomas D. Moore on "Serial Pyelography." Both are of Memphis.

TEXAS

Changes in Hospital Superintendents.—The board of control, July 17, announced appointment of the following physicians, among others, as superintendents of state eleemosynary institutions replacing superintendents whose contracts expired August 31: Drs. Aloysius T. Hanretta at Rusk State Hospital, succeeding Morris S. Wheeler; Lewis Barbato, Galveston, at San Antonio State Hospital, succeeding William J. Johnson, and Chester A. Shaw, Rusk, at Big Spring State Hospital, succeeding George T. McMahan.

WASHINGTON

Society News.—Dr. Kyran R. E. Hynes, Seattle, addressed the Spokane County Medical Society, Spokane, September 11, on "Clinical Physiology of Shock."——Drs. Franklin G. Ebaugh, Denver, and Thomas A. C. Rennie, Baltimore, addressed the Pierce County Medical Society, Tacoma, September 9, on "Modern Conceptions of Mental Disorders" and "Psychoneurosis" respectively.

WISCONSIN

Changes in Health Officers.—Dr. Edwin H. Jorris, recently a district health officer with headquarters at Sparta, has been made director of the tuberculosis division in the state department of health, according to the *Wisconsin Medical Journal.*——Dr. Ernest Newman, Wausau, has resigned as director of the health unit of Marathon County to join the U. S. Public Health Service.

New Members of State Medical Board.—Governor Heil recently appointed the following new members of the state board of medical examiners: Drs. Anthony F. Ruffolo, Kenosha; Ernest W. Miller, Milwaukee, and Raymond G. Arveson, Frederic, and E. C. Murphy, D.O., Eau Claire. Dr. Henry H. Christofferson, Colby, who was reappointed, is president of the board and Dr. Harold W. Shutter, Milwaukee, is secretary.

District Medical Meetings.—The Second Councilor District Medical Society held a meeting in Racine, August 20, with the following speakers: Drs. Merritt Paul Starr, Chicago, on "Diagnosis and Treatment of Adrenal Insufficiency"; Archibald L. Hoyne, Chicago, "Present Day Treatment of Contagious Diseases," and Herman O. McPheeters, Minneapolis, "Injection Treatment of Varicose Veins and Hemorrhoids."——The Ninth Councilor District Medical Society held its summer meeting at Marshfield, August 21. A clinical meeting was held at St. Joseph's Hospital in the afternoon, and papers were presented in the evening by Drs. Ovid O. Meyer and Carl S. Harper, Madison, on "Treatment of Decompensation of the Heart" and "Menopause Disturbances" respectively.

WYOMING

New Health Unit in Laramie County.—Cheyenne and Laramie County officials have authorized the establishment of a health unit for the county with Dr. Walter S. Kotas, formerly of Greybull, as director. City and county funds will be augmented by the Children's Bureau and the U. S. Public Health Service. The unit was requested by army and public health officials because of the presence of Fort Warren and a new cantonment near Cheyenne, which together have brought fifteen thousand soldiers to the area.

GENERAL

New Medical Director of Bureau of Standards.—Dr. Clifton R. Wallace, formerly industrial surgeon for the Babcock-Wilcox Boiler Works and for the Tidewater Oil Company, Bayonne, N. J., and one time surgical supervisor for the Travelers Insurance Company at New York, has been appointed medical director of the National Bureau of Standards, U. S. Department of Commerce, Washington, D. C. Dr. Wallace graduated at George Washington University School of Medicine, Washington, D. C., in 1907.

Biographic Material on Dr. Rose.—Miss Clyde Schuman, 420 Riverside Drive, New York, is writing a biography of the late Mary Swartz Rose, Ph.D., for many years professor of nutrition at Columbia University, New York, and a member of the Council on Foods and Nutrition of the American Medical Association. Dr. Rose died February 1. Miss Schuman requests letters from persons having notes on Dr. Rose's lectures or comments on her educational and scientific procedures, from those who knew her as a fellow student, from those serving on national and international committees with her, and from friends who may have pertinent information. Miss Schuman states that any material submitted will be promptly copied and returned.

Drug Firms' Contracts with German Firms Terminated.—The U. S. Department of Justice announced on September 5 the filing in the U. S. District Court for the southern district of New York of two complaints and consent decrees, together with an information to which the defendants pleaded *nolo contendere*, as a result of an investigation of the Alba Pharmaceutical Company, Inc., the Bayer Company, Inc., the Winthrop Chemical Company and Sterling Products, Inc., on charges of violating the antitrust laws by restricting markets. Two individuals, Albert H. Diebold and William Weiss, president and chairman, respectively, of Sterling, were also defen-

dants. It was alleged that Winthrop and Bayer, subsidiaries of Sterling, had contracts with the German firm of I. G. Farbenindustrie and its predecessor, Friedrich Bayer, whereby conduct of the Bayer export business outside of the United States was subject to an illegal profit-sharing arrangement. It was alleged also that Winthrop Chemical refrained from exporting certain new products to certain foreign markets in return for the exclusive right to market these products in the United States. By terms of the consent decrees these agreements are terminated and the products of the American firms are made available to Latin American countries whose source of supply has been cut off. Under the original agreement, it was pointed out, many new and important drugs were disclosed to Winthrop Chemical and made available in the United States, but delivery of new processes and products has now ceased because of the war. The announcement from the Department of Justice emphasized that Sterling Products has always been a wholly American company and none of the profits from the sale of Bayer aspirin in the United States have been shared with any foreign interest. Similarly, none of the domestic American products or activities of the Bayer Company were involved in the relations with the German firm, nor is there any foreign interest in the numerous other subsidiaries of Sterling Products.

American Roentgen Ray Society.—The forty-second annual meeting of the American Roentgen Ray Society will be held in Cincinnati at the Netherland Plaza Hotel, September 23-26, under the presidency of Dr. William M. Doughty, Cincinnati. Among the speakers will be:

Dr. Gordon E. Richards, Toronto, Canada, The Result of Chest Surveys for the Canadian Army.
Dr. Alfred F. Hocker, New York, Two Years of Experience with Million Volt Roentgen Therapy.
Dr. Stuart W. Harrington, Rochester, Minn., Diaphragmatic Hernia.
Dr. Tom D. Spies, Birmingham, Ala., The Manifestations of Vitamin Deficiencies as They Affect the Practice of Roentgenologists.
Dr. Richard Schatzki, Boston, Roentgen Appearance of Intramural, Extramucosal Lesions of the Gastrointestinal Tract.
Dr. Byrl R. Kirklin, Rochester, Minn., The Meniscus Sign-Complex: A Pathognomonic Index of Early Ulcerating Cancer of the Stomach.
Drs. Harold Dabney Kerr and Wayne K. Cooper, Iowa City, Radiation Treatment of Pituitary Adenoma.
Drs. John R. Carty, John R. Seal and Harold J. Stewart, New York, Contributions of Roentgenology to the Diagnosis of Chronic Constrictive Pericarditis.
Drs. John W. Pierson and George J. Farber, Baltimore, A Study of Bone Changes Occurring in Congenital Syphilis.

Dr. John H. Lawrence, assistant professor of medicine, University of California Medical School, San Francisco, who is in charge of medical investigations with the cyclotron at the university, will deliver the Caldwell Lecture on Tuesday evening, September 23. The society will also present instruction courses each morning, with five sequential courses and individual courses on radiation physics, therapeutic radiology and diagnostic roentgenology.

The Poliomyelitis Situation.—The U. S. Public Health Service reported September 12 that the incidence of poliomyelitis this year is about 15 per cent higher than that of 1940, which was unusually low, according to the New York *Times*. The number of cases reported to the service for the period January 1 to September 1 was 4,611 as compared with 4,059 for the corresponding period of 1940. In 1937, the last year of significantly high incidence, the number of cases for the same period was 5,512. The disease has been concentrated in the Middle and South Atlantic states, with an extension to the Middle West, the distribution showed. States reporting more than 15 cases each for the week ended September 6 were: New York 71; Pennsylvania 66; Alabama 66; Georgia 49; Tennessee 38; Ohio 33; New Jersey 32; Minnesota 23; Illinois 21; Massachusetts 18; Kentucky 18; Maryland 16; Virginia 15. These figures represented decreases in Georgia, Ohio, Illinois, Massachusetts and Maryland.——Officials of Bergen County, N. J., considered closing all schools in the county, it was reported September 14; twenty-two districts had already postponed their openings. Passaic County schools were to open September 15, it was said. New Jersey had 102 cases in August and 46 from September 1 to 12.——Ten new cases in New York City September 12 brought the total for the year there to 207 cases, which compared with a normal expectancy of 99, but was not considered an epidemic, it was said.——Theaters and other amusement centers were closed in Chattanooga, Tenn., September 12, as 2 new cases brought the total number in the city and Hamilton County since July 1 to 94.——The Maryland state health department reported a downward trend in that state, September 10, according to the Washington *Star*. There have been 148 cases in the state this year, of which 76 were in Baltimore. There have been 19 cases in Prince Georges County, which adjoins the District of Columbia.

Public Health Association.—The seventieth annual meeting of the American Public Health Association will be held at the Convention Hall, Atlantic City, N. J., October 11-17. The many sectional programs include the following speakers:

Dr. Sidney O. Levinson, Chicago, Therapeutic Use of Normal Human Plasma and Serum.
Dr. Raymond Hussey, Baltimore, The State Medical Society's Responsibility in Mental Hygiene.
Elmer V. McCollum, Ph.D., Baltimore, Is There a Need for the Reinforcing of Milk?
Dr. Wilson G. Smillie and Olga F. Jewett, New York, Role of Type XIV Pneumococci in Producing Illness.
Dr. John E. Gordon, Boston and London, Epidemiologic Observations in War-Time London.
Dr. William D. Stovall, Madison, Wis., Some Problems in the Diagnosis of Rabies.
Drs. Leslie T. Webster and Jorge Casals-Ariet, New York, An Improved Nonvirulent Rabies Vaccine.
Drs. John R. Paul and James D. Trask, New Haven, Conn., Occurrence and Recovery of the Virus of Infantile Paralysis from Water.
Pearl L. Kendrick, Sc.D., Grand Rapids, Mich., Use of Alum Treated Pertussis Vaccine and of Alum Precipitated Combined Diphtheria Toxoid and Pertussis Vaccine for Active Immunization.
Vincent DuVigneaud, Ph.D., New York, Biotin—A New Member of the Vitamin B Complex.
Dr. Sidney W. Bohls and Vernal Irons, Sc.D., Austin, Tex., Chorio-Allantoic Membrane Infection as a Diagnostic Test for Smallpox.

One session will be devoted to a discussion of nutrition in national defense. The eighth institute on public health education, sponsored by the public health education section of the American Public Health Association, will be held from Saturday to Tuesday. Among the speakers will be Drs. Estella Ford Warner, Albuquerque, N. M., on "Educational Technics for Nutrition" and Raymond A. Vonderlehr, Washington, D. C., "Current and Future Programs of Education Regarding Syphilis and Gonorrhea." Many related organizations will hold meetings during the annual session of the public health association. Announcement of the Sedgwick Memorial Medal Award will be made Tuesday evening, and presentation of forty year membership certificates will be made at the annual banquet Thursday evening.

LATIN AMERICA

New Dean Appointed.—Dr. Henri de Bayle, a graduate of the University of Pennsylvania School of Medicine, Philadelphia, class of 1923, has been appointed dean of a new school of medicine at the Central University of Nicaragua, according to the New York *Times*, September 2. Dr. de Bayle has served as minister from Nicaragua to the United States.

FOREIGN

Personal.—Colonel (Temporary Brigadier) Alexander Hood has been appointed director general of the Army Medical Services, the *British Medical Journal* reports. He succeeds Lieut.-Gen. Sir William P. Macarthur, who retired August 1.

CORRECTION

Physical Fitness.—In the paper on this subject by Jokl and Cluver in THE JOURNAL, May 24, page 2384, second column, seven lines from the bottom, the authors stated that their tests in putting the shot were conducted with a weight of 10 pounds, whereas actually they were carried out with a weight of 12 pounds.

Government Services

New Naval Hospital at Corpus Christi

A new hospital at the U. S. Naval Air Station at Corpus Christi, Texas, was dedicated July 1, with Dr. Neil D. Buie, Marlin, president of the State Medical Association of Texas, as the principal speaker.

Changes in Public Health Service

Dr. Deane F. Brooke has been commissioned as surgeon in the reserve, U. S. Public Health Service, effective August 15. The following physicians have been commissioned as assistant surgeons in the reserve: Carl Wiesel, Fort Leonard Wood, Md.; Dean B. Jackson, Angola, Ind.; Linden E. Johnson, Seattle; Avery B. Wight, Seattle, and Eugene K. Enns, Newton, Kan.

Passed Asst. Surg. George G. Van Dyke has been relieved from duty at Berlin, Germany, and directed to proceed to Washington, D. C., for duty in the states relations division.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 19, 1941.

Maintenance of Public Services During the Bombing of London

At the County Hall, the home of the London County Council, Mr. Churchill was guest of honor at a luncheon given to the government and the chiefs of the civil defense services. He praised the courage of the Londoners and the inhabitants of other cities under concentrated bombing attacks. No one knew beforehand what would be the result of a concentrated and prolonged bombing of the vast population in the Thames valley, amounting to more than eight million people dependent from day to day on light, heat, power, water, sewerage and communications on the most complicated scale. The administration of London was confronted with problems hitherto unknown in all its history. Public order, public health, the maintenance of all the essential services, the handling of millions of people who came in and out of London every day; shelter—not indeed from bombs, for that was beyond us—but from their blast and splinters; the removal of the dead and wounded from shattered buildings; the care of the wounded when hospitals were being ruthlessly bombed; provision for the homeless, sometimes amounting to many thousands in a single day: these things, with the welfare of great numbers of children, presented tasks which might have seemed overwhelming. Indeed, before the war plans were made to move the government and all the great controlling services from London and disperse them about the countryside. When the storm broke in September, water was cut off, railways were cut or broken, large districts were destroyed by fire, twenty thousand people were killed and many more thousands were wounded. But there was one thing about which there was never any doubt—the courage and unconquerable grit of the Londoners. Without that, all would have failed. All the public services were carried on, and all the intricate arrangements involving the daily lives of so many millions were carried out, improvised, elaborated and perfected in the very teeth of the storm.

Saving Children in Air Attacks

The Minister of Health, Mr. Ernest Brown, has described his recent tour of evacuation and reception areas. Wherever he went he was impressed with the way the people helped one another in time of trouble. The housewives of the safer areas were playing a key part in a great war service, involving heavy sacrifices for the children's sake. We had taken a million and a half women and children away from their homes and families and mixed them with strangers, so that we could hardly expect 100 per cent successes. But we might perhaps call it an 80 per cent success. Anyway a scheme which kept nearly a million children away from the most dangerous areas and had already saved thousands of lives was well worth while. The minister suggested that every one should now arrange with friends or relatives living in another part of the town—if possible not less than half a mile away—to go straight to them if bombed out. If this mutual pact came into operation, a lodging allowance of a dollar for each person would be paid by the local council for the first fortnight in any case, and longer if needed.

Leprosy Control

At the annual meeting of the Leprosy Relief Association Sir Leonard Rogers, F.R.S., emphasized the need to modify the policy of compulsory segregation which leads to the hiding of cases until no longer amenable to treatment. It had been shown that 80 per cent of infections arise in the households of leprosy patients and that nineteen out of twenty infections are derived from prolonged contact with the more infectious skin type and only one from the nerve type. This led to the release of a third of the patients segregated in South Africa as uninfective and with the spread of the knowledge that most early cases can be effectually treated in less than two decades 4,500, or two thirds of the known patients, largely voluntary admissions, have passed through the new kind of agricultural leper colonies and been released as no longer infective. In badly infected southern Soudan over half the 7,075 patients moved to agricultural colonies have been cleared of all symptoms of active disease. In Nigeria, the most infected of our colonies, the lepers, mostly infectious ones, isolated and treated under a voluntary system in large agricultural colonies, have increased from 2,500 to 7,000. In British Guiana the government has modified the compulsory isolation law to permit persons with early involvement to be treated at dispensaries. Little progress had been made in the last few years in discovering a curative treatment for all stages of the disease. But a new oil, closely resembling the effective hydnocarpus oil in chemical formula, was now being tested. Progress was most likely on such chemotherapeutic lines.

Invalids and Bread Fortified with Calcium

The Medical Research Council has issued a statement of the effect on invalids of bread made from flour fortified by the addition of calcium salts. The exigencies of the war have forced on the people of this country a diet which requires a supplement of calcium salts for the maintenance of health. The Ministry of Food asked the advisory committee of the council whether the addition of small supplements of calcium salts to flour would in any way be deleterious to invalids. The committee's reply was that there is neither medical nor scientific evidence that bread made from flour fortified with calcium is harmful in any type of disease.

It has been proposed that 14 ounces of calcium carbonate be added to 280 pounds of 85 per cent extracted flour and 7 ounces to white flour. Thus each pound of the fortified former flour and 2 pounds of the latter flour would contain slightly less calcium than a pint of milk. There is therefore no danger that invalids will consume harmful amounts of calcium. It has been suggested that calcium might have a harmful effect because it is in the form of carbonate, which is different from the form naturally in food. This criticism appears to be ill founded. There is direct evidence, obtained on human beings, that calcium carbonate is as available to the body as calcium phosphate. In an easily assimilable food, such as milk, calcium is in combination with phosphoric acid, a common normal component of animal tissues; in calcium carbonate, calcium is also present as the salt of an acid of widespread occurrence in living tissues. In both cases the calcium is split off from the acid during the process of digestion and is absorbed into the body in the same form in each case.

A Method of Administering Ether

At the Nuffield Department of Anesthetics, University of Oxford, a new device for the administration of ether, known as the Oxford vaporizer, has been perfected. Its principle turns to account the physical phenomenon of latent heat to vaporize ether when administered. No satisfactory method of doing this had previously been devised. The jacket of warm water used around Boyle's bottle is unwieldy, as the initial temperature of the water must not exceed 34 C., the boiling point of ether. In the new vaporizer there is a chamber containing crystals of calcium chloride and a hot water chamber to melt these. When some of the ether evaporates, the requisite heat is supplied by the molten crystals, which then recrystallize.

The recrystallization continues and supplies the heat to the ether at a constant temperature a little below the boiling point of ether as long as heat is abstracted by further evaporation of the ether. The latent heat of crystallization of the calcium chloride is used as a reservoir which supplies heat at a constant temperature. Thus a constant supply of concentrated ether vapor is available. This may be diluted to any desired strength by a calibrated mixing tap.

Increase of Food Rationing: Supplies Well Maintained

Lord Woolton, minister of food, has announced that he proposes to bring more and more foods under control and to restrict their distribution to the most economic lines. He had come to the end of the commodities he could ration on the present basis with two exceptions. One was bread, which he hoped he never would have to ration; the other was milk. He would try an experiment in rationing eggs. They were most difficult to handle because he did not have control of the supplies brought for sale by the home producer. He could no longer tolerate the uneven distribution of eggs. He would give priority to children and invalids. He would probably require consumers to register for eggs at one shop only. He would completely control the distribution and price of fish. Food prices had been held down for all major commodities; imports of wheat would continue without increase of price at the port of shipment for at least twelve months. We could see twelve months ahead with no doubt of maintaining our bread and meat supplies at the present level. Even in towns and ports which had been subjected to enemy action, food supplies had been maintained. We had come through the winter and nationally were quite healthy. We had survived twenty months of war, and our food supplies were as secure as they were twelve months before.

Sir William Willcox

The death of Sir William Willcox has removed a well known physician and the leading toxicologist of his day. He was educated at St. Mary's Hospital and after a distinguished career as a student was elected to the staff in 1907 and about this time became a junior analyst to the government. His senior was the toxicologist Sir Thomas Stevenson, whom he succeeded. He became well known by his evidence in many cases in which poisoning was the charge, and the lawyers employed by the defense always failed to upset his well prepared evidence. Perhaps the most remarkable was the Crippen case, in which the murderer made the fatal mistake of using quicklime when he buried the remains in a cellar. This preserved them, and Willcox was able to find scopolamine. For thirty years he was lecturer on chemical pathology at St. Mary's Hospital and for nearly the same period lecturer on forensic medicine. His occupation with toxicology and forensic medicine did not prevent him from being in the front rank as a general physician but, as might be expected, it was the chemical side of medicine which most attracted him. He was always thorough and cautious. When the barbiturates came into fashion he was never tired of warning against their indiscriminate use. His favorite medium for teaching was the lecture table. The most important of his writings were "Diseases of the Stomach" in the Dictionary of Practical Medicine; "Arthritis" and "Toxicology" in Price's Textbook of Medicine; "The Treatment of Diabetes with Special Reference to Insulin," in the *Practitioner*, and his Lumleian lectures on "Toxic Jaundice" in 1931. He was master of the Society of Apothecaries and president of the great London medical societies.

RIO DE JANEIRO

(From Our Regular Correspondent)

July 20, 1941.

The Use of Sulfanilamide by Arterial Injection

The use of arterial injections for therapeutic purposes was tried by Goyanes in 1908; in the war of 1914-1918 antitetanic serum was injected into the carotid, but only after the experiences of Portuguese clinicians was the arterial method adopted in Latin countries. Many articles were written showing excellent results from the arterial administration of antiseptic solutions in some disorders of the limbs. In Brazil, six years ago, Armenio Boreli of Rio de Janeiro proposed the use of microbian vaccines arterially. The method was quickly taken up in our principal medical centers as an excellent means to combat infections of the extremities.

Having in view the good results of intra-arterial injections and the well known effects of sulfanilamide in many infections, Eurico Branco Ribeiro of São Paulo used the drug in this manner in several disorders of the extremities. His large experience was referred to in recent papers read before medical societies by him and his collaborators, Drs. Paulo G. Bressan and José Saldanha Faria. Sulfanilamide has advantages in relation to other antiseptic substances. This drug does not cause local endarteritis, as some others do.

The technic of application is simple. The artery is fixed between the middle and index fingers of the left hand. With the right hand the needle is introduced into the artery and immediately a column of red blood appears in the syringe at every pulsation. The injection can then be made, not too quickly. The needle does not have such a narrow caliber. When the needle has a large caliber, as in needles employed for oil injection, it is easy to recognize that the artery has been reached.

Among the conditions that can be improved by this method, Ribeiro mentions pyoarthritis, lymphangitis, angiophlebitis, cellulitis, pyodermatitis, erysipelas, folliculitis, furunculosis, abscess, varicose ulcers, tropic ulcers, acute osteomyelitis and infected wounds. In chronic osteomyelitis and in other chronic infections the effects are not so good. For prophylactic purposes, intra-arterial sulfanilamide has a wide application in many traumatic conditions to avoid suppuration or even tetanus.

Personal

The Faculty of Medicine of the University of São Paulo has a new director, Prof. Benedicto Montenegro, who is a famous Brazilian surgeon. He was born in São Paulo but took his medical course in the United States. His work on peptic ulcer is well known. He created in São Paulo a school of surgeons whose members are contributing to the rapid progress of surgery in that region.

Marriages

JERE ROBERT DOWNING, Kennebunk, Maine, to Miss Leta Marr of Asheville, N. C., in Durham, N. C., July 5.

HENRY LAWRENCE SMITH JR., Wallingford, Pa., to Miss Juliet Seeley Bacon of Danbury, Conn., August 2.

GEORGE KING LOOSER, New York, to Miss Catherine Louise Pommerer of Grand View, N. Y., July 12.

ARTHUR ILLGES CHENOWETH, New York, to Miss Barbara Mary Derr of Wilmington, Del., July 2.

WINFIELD E. STUMPF, Forest Hills, N. Y., to Miss Margaret Lewerth of New York, August 1.

PHILLIP SAUL BAZAR to Miss Helen Louise Bowers, both of Montgomery, Ala., in July.

TRUMAN W. BROPHY III to Miss Edna Louise Colbert, both of San Francisco, in August.

PHILIP J. CLARK, Fond du Lac, Wis., to Miss Pauline Berge of Beloit, June 14.

Deaths

Arthur Roosevelt Bowles ✠ Chicago; Yale University School of Medicine, New Haven, Conn., 1931; received his bachelor's degree from Columbia University, New York, in 1927; served a two year medical internship at the New Haven Hospital and a one year pediatric internship at the Strong Memorial Hospital, Rochester, N. Y.; during the winter of 1934-1935 studied hospital administration at the University of Chicago on a Rosenwald fellowship; from 1935 to 1937 was assistant director and during 1937 and 1938 acting director of the Grasslands Hospital, Valhalla, N. Y.; since October 1939, hospital inspector on the staff of the Council on Medical Education and Hospitals of the American Medical Association; aged 35; died, September 3, in the City Hospital, Indianapolis, of malignant hypertension with nephritis.

Henry Joachim ✠ New York; Cornell University Medical College, New York, 1904; fellow of the American College of Physicians; past president of the Medical Society of the County of Kings; clinical professor of medicine at the Long Island College of Medicine from 1918 to 1931; served in various capacities and for many years on the staffs of the Cumberland Hospital, Jewish Sanitarium and Hospital of Chronic Diseases, Greenpoint Hospital, St. Catherine's Hospital, Israel Zion Hospital, Beth Moses Hospital and the Long Island College Hospital, Brooklyn; in 1937 was appointed member of the state industrial council; author of "Practical Diagnosis and Treatment"; aged 58; died, August 18, of intestinal carcinoma.

Ralph Nelson Greene ✠ Coral Gables, Fla.; Memphis (Tenn.) Hospital Medical College, 1904; member of the American Neurological Association; medical director of the Eastern Air Lines; was medical consultant for Pan American Airways; past president of the Florida Medical Association; formerly state health officer; at one time on the staff of the Florida State Hospital, Chattahoochee; served during the World War; aged 57; died, August 1, in a hospital at Miami of coronary occlusion.

Samuel Solomon Gidding ✠ Wildwood, N. J.; Jefferson Medical College of Philadelphia, 1934; lieutenant, junior grade, of the United States Naval Reserve, called to active duty Jan. 24, 1941; served with the first marine division of the fleet marine force at Quantico, Va., Guantanamo Bay, Cuba and Parris Island, S. C.; was clinical assistant in pediatrics at his alma mater; on the staff of the Atlantic Shores Hospital, Somers Point; aged 31; died, August 12, of lymphosarcoma.

Kate Breckenridge Bogle Karpeles ✠ Washington, D. C.; Johns Hopkins University School of Medicine, Baltimore, 1914; past president of the Medical Women's National Association and the Women's Medical Society of the District of Columbia; contract surgeon with the United States Army during the World War; assistant professor at the University of Maryland, College Park; aged 53; associate in medicine at the Garfield Memorial Hospital, where she died, August 15, of lymphosarcoma.

George Parrish, Los Angeles; Missouri Medical College, St. Louis, 1894; member of the California Medical Association; since 1924 health officer of Los Angeles; health commissioner of Portland, Ore., from 1917 to 1924; past president of the Portland City and County Medical Society; past president of the Oregon State Health Officers' Association; aged 69; died, August 7, in the Glendale (Calif.) Sanatorium.

Scott Dudley Breckinridge ✠ Lexington, Ky.; Georgetown University School of Medicine, Washington, D. C., 1907; past president of the Fayette County Medical Society; served during the World War; on the staffs of the Good Samaritan Hospital and St. Joseph's Hospital; co-author with Dr. Edward M. Parker of "Surgical and Gynecological Nursing"; aged 59; died, August 1, of carcinoma of the colon.

William Buckley Peck ✠ Freeport, Ill.; Rush Medical College, Chicago, 1897; fellow of the American College of Surgeons; founder and managing director of the Inter-State Postgraduate Medical Association of North America since its inception in 1916; formerly on the staffs of St. Francis Hospital and the Deaconess Hospital; aged 70; died, August 20, of coronary heart disease.

Elmer Ellsworth Kimmel, Columbus, Ohio; Hahnemann Medical College and Hospital of Philadelphia, 1905; member of the Ohio State Medical Association; veteran of the Spanish-American and World wars; formerly Montgomery County coroner; for many years connected with the state industrial commission; aged 67; died in August at the White Cross Hospital.

Harry Perry Engle ✠ Newton, Iowa; State University of Iowa College of Medicine, Iowa City, 1898; member of the American Academy of Ophthalmology and Oto-laryngology; formerly secretary of the Jasper County Medical Society; aged 68; died, August 5, in the Mary Frances Skiff Memorial Hospital of cerebral hemorrhage and prostatic hypertrophy.

W. Myers Hunter ✠ Charlotte, N. C.; Georgetown University School of Medicine, Washington, D. C., 1905; member of the American Academy of Pediatrics; past president of the North Carolina Pediatric Society; on the staffs of the Mercy Hospital, the Presbyterian Hospital and the Charlotte Memorial Hospital; aged 58; died, August 4.

James Harold Collins, Memphis, Tenn.; George Washington University School of Medicine, Washington, D. C., 1915; member of the Tennessee State Medical Association; formerly professor of physiology and pharmacology at the University of Tennessee College of Medicine; aged 56; died, August 5, in St. Joseph's Hospital.

Harry Clarkson Cunningham, Carman, Man., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1885; L.R.C.P., Edinburgh, L.R.C.S., Edinburgh, and L.R.F.P.& S., Glasgow, 1887; fellow of the American College of Surgeons; on the staff of the Carman General Hospital; aged 77; died, July 2, of cerebral hemorrhage.

Henry Barr Ingle ✠ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1902; served during the World War; on the staff of the National Stomach Hospital; at one time medical superintendent of the Diagnostic Hospital; aged 63; died, August 10, in the United States Naval Hospital of myocarditis.

Herbert Payne Fisher ✠ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1896; at one time associate professor of medical and physical diagnosis, Temple University School of Medicine; aged 69; died, August 5, in the City Hospital, Atlantic City, N. J., of perforated gastric ulcer and peritonitis.

William Hinkle Massey ✠ Surgeon Lieutenant Commander, United States Navy, retired, Peoria, Ill.; Cooper Medical College, San Francisco, 1912; entered the navy Aug. 17, 1914 and retired June 14, 1923 for incapacity resulting from an incident of service; served during the World War; aged 55; died, August 16.

Joseph Robert Kuth ✠ Duluth, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1904; member of the Clinical Orthopedic Society and the American Academy of Orthopedic Surgeons; aged 60; on the staffs of St. Luke's Hospital and St. Mary's Hospital, where he died, August 1, of leukemia.

Charles Joseph Swan, Evanston, Ill.; Hahnemann Medical College and Hospital, Chicago, 1890; Northwestern University Medical School, Chicago, 1909; fellow of the American College of Surgeons; served during the World War; formerly on the staff of the Evanston Hospital; aged 76; died, August 6, of coronary occlusion.

Lawrence Edward Growney ✠ Kansas City, Kan.; Creighton University School of Medicine, Omaha, 1923; county coroner; formerly county health officer; lieutenant commander in the United States Naval Reserve; served during the World War; aged 46; died, August 9, in St. Margaret's Hospital of pneumonia.

Ralph Kaysen ✠ San Diego, Calif.; Milwaukee Medical College, 1907; fellow of the American College of Surgeons; colonel in the United States Army Reserve Corps; aged 56; attending orthopedic surgeon, Mercy Hospital, San Diego, and the Scripps Memorial Hospital, La Jolla, where he died, August 4.

Isadore Kaufman ✠ Philadelphia; University of Virginia Department of Medicine, Charlottesville, 1904; fellow of the American College of Physicians; consultant, pulmonary diseases, Abington (Pa.) Memorial Hospital; visiting physician, White Haven (Pa.) Sanatorium; aged 59; died, August 11.

Frank Jasper Runyon ✠ Clarksville, Tenn.; University of Louisville (Ky.) Medical Department, 1884; Bellevue Hospital Medical College, New York, 1885; past president of the Montgomery County Medical Society; on the staff of the Clarksville Hospital; aged 78; died, August 6, of angina pectoris.

Daniel David Murphy ✠ Amesbury, Mass.; Dartmouth Medical School, Hanover, N. H., 1891; on the staff of the Anna Jacques Hospital, Newburyport, and the Amesbury Hospital; aged 77; died, August 8, in the Peter Bent Brigham Hospital, Boston, of heart disease.

Gerald Blake ✠ Brookline, Mass.; Harvard Medical School, Boston, 1905; for many years physician at the Massachusetts General Hospital and consulting physician at the Massachusetts Charitable Eye and Ear Infirmary, Boston; aged 60; died, July 28, of coronary thrombosis.

Frank M. Gipple, Williamsville, N. Y.; University of Buffalo School of Medicine, 1880; member of the Medical Society of the State of New York; aged 87; died, July 29, in the Buffalo General Hospital of cerebral hemorrhage, arteriosclerosis and bronchopneumonia.

Olin Everett Farley ✠ New York; McGill University Faculty of Medicine, Montreal, Que., Canada, 1915; served with the Canadian Army during the World War; on the staff of the Manhattan Eye and Ear Hospital; aged 49; died, August 5, of heart disease.

Edward John Ballou, Buffalo; Cornell University Medical College, New York, 1910; member of the Medical Society of the State of New York; for many years member of the city health department; aged 54; died, July 30, of cerebral hemorrhage and arteriosclerosis.

Frank Wesley Gavin, Canton, Ohio; Bellevue Hospital Medical College, New York, 1894; formerly county coroner; past president of the medical staff of the Aultman Hospital; aged 69; died, August 12, in the Molly Stark Sanatorium of pulmonary tuberculosis.

William Leighton Tracy ✠ Pittsfield, Mass.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1908; fellow of the American College of Surgeons; on the staff of the Hillcrest Hospital; aged 66; died, August 2, of a self-inflicted bullet wound.

Robert Allen Webster, Clyde, Texas; National University of Arts and Sciences Medical Department, St. Louis, 1916; member of the State Medical Association of Texas; aged 50; died, July 30, in the Hendrick Memorial Hospital, Abilene, of coronary thrombosis.

Jack Bertolette Zerbee, Easton, Md.; George Washington University School of Medicine, Washington, D. C., 1920; member of the Medical and Chirurgical Faculty of Maryland; on the staff of the Emergency Hospital; aged 45; died, July 31, of cerebral hemorrhage.

Elmore Le Roy Steele, Akron, Ohio; University of Western Ontario Medical School, London, Ont., Canada, 1914; member of the Ohio State Medical Association; served during the World War; aged 50; died, August 2, in the People's Hospital.

De Witt S. Floyd, Danville, Ky.; Kentucky School of Medicine, Louisville, 1898; member of the Kentucky State Medical Association; aged 69; died, August 1, in the Danville and Boyle County Hospital of injuries received in a train accident.

Gilbert Albertus Foote, Dexter, N. Y.; University of the City of New York Medical Department, 1887; member of the Medical Society of the State of New York; for many years health officer; aged 82; died, August 17, of angina pectoris.

Irving Delbert Cole, Clarksburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1908; member of the West Virginia State Medical Association; past president and secretary of the Harrison County Medical Society; fellow of the American College of Surgeons; aged 60; died, August 10.

John P. Conn, Monticello, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1897; member of the Mississippi State Medical Association; member of the state legislature; aged 71; died, August 6, in Jackson.

Rufus L. Cone, Statesboro, Ga.; Maryland Medical College, Baltimore, 1904; member of the Medical Association of Georgia; mayor; on the staff of the Bulloch County Hospital; aged 62; died, July 30, of cardiorenal vascular disease.

George William Tully, Southbridge, Mass.; Tufts College Medical School, Boston, 1912; member of the Massachusetts Medical Society; on the staff of the Harrington Memorial Hospital; aged 52; died, July 21, of coronary thrombosis.

Deyo Palmer Mathewson, Bath, N. Y.; University of the City of New York Medical Department, 1891; at one time health officer; formerly medical superintendent of the Pleasant Valley Sanitarium; aged 72; died, August 19.

Charles William Hartloff, Evansville, Ind.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897; for many years on the staff of the Deaconess Hospital; aged 71; died, August 1, of diabetes mellitus.

Emmet Bascom Koger, Miami, Fla.; Medico-Chirurgical College of Philadelphia, 1899; Tennessee Medical College, Knoxville, 1900; for many years member of the city health department; aged 67; died, August 14.

Lewis Hertz Lippman, Chicago; Chicago College of Medicine and Surgery, 1913; member of the Illinois State Medical Society; aged 53; died, August 9, in St. Mary's Hospital, Kankakee, Ill., of coronary thrombosis.

John Raymond Sackrider, Santa Barbara, Calif.; University of Buffalo School of Medicine, 1902; served during the World War; aged 63; died, August 4, in the Santa Barbara Cottage Hospital of multiple myeloma.

James Cantine Coles, Ellenville, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1896; Dunham Medical College, Chicago, 1898; health officer of Ellenville; aged 67; died, August 2.

Frank W. McHugh, Ontonagon, Mich.; Milwaukee Medical College, 1903; member of the Michigan State Medical Society; on the staff of the Ontonagon Hospital; aged 69; died, August 1, of coronary thrombosis.

Katharine Brainerd Rich, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; aged 77; died, August 14, in Henrotin Hospital of cerebral hemorrhage.

Isaac Shirk Simons ✠ Lancaster, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1914; for many years on the staff of St. Joseph's Hospital; aged 60; died, August 3, of coronary occlusion.

Roy Demas Young, Arlington, Mass.; Columbia University College of Physicians and Surgeons, New York, 1898; member of the Massachusetts Medical Society; aged 69; died, July 25, of coronary thrombosis

Jacob Alex Shields, LaFayette, Ga.; Chattanooga (Tenn.) Medical College, 1903; member of the Medical Association of Georgia; chairman of the county board of health; aged 65; died, July 29, of cerebral thrombosis.

Lionel Alexander Burnet Street, Los Angeles; Tufts College Medical School, Boston, 1898; physician to the court of Siam from 1911 to 1913; aged 71; died in July of an overdose of morphine, self administered.

Lionel Charles Hutson, Bridgeton, Barbados, British West Indies; McGill University Faculty of Medicine, Montreal, Que., Canada, 1914; served with the Canadian Army during the World War; aged 50; died recently.

Frank Jones Bevan, Forest Hills, N. Y.; Long Island College Hospital, Brooklyn, 1911; aged 65; died, August 11, in the Lutheran Hospital, New York, of adenocarcinoma of the rectum and carcinomatosis.

Albert Sidney Pugh, Grove Hill, Ala.; Kentucky School of Medicine, Louisville, 1892; member of the Medical Association of the State of Alabama; aged 71; died, August 9, of carcinoma of the stomach.

Jesse A. Slocumb ✠ Plainview, Minn.; College of Physicians and Surgeons of Chicago, 1895; past president of the Wabash County Medical Society; aged 68; died, July 3, of coronary thrombosis.

John Linton Joseph Vallely, Chicago; Northwestern University Medical School, Chicago, 1910; on the staffs of the Augustana and Edgewater hospitals; aged 73; died, August 7, of coronary sclerosis.

Joseph Lewis Allen, Loretto, Ky.; Kentucky School of Medicine, Louisville, 1903; member of the Kentucky State Medical Association; aged 65; died, August 12, in St. Joseph's Infirmary, Louisville.

Ellison Holmes Williamson, Soso, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1909; served during the World War; aged 60; died, July 26, of coronary thrombosis.

William Orson Ellsworth, Austinburg, Ohio; Western Reserve University Medical Department, Cleveland, 1885; formerly county coroner and member of the school board; aged 80; died, August 1.

Fred Ernest Simeral, Brooklyn, Iowa; University of Missouri School of Medicine, Columbia, 1909; member of the Iowa State Medical Society; aged 62; died, August 15, of carcinoma of the prostate.

Edward Samuel Blair, Wayne, Neb.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887; member of the Nebraska State Medical Association; aged 84; died, August 7.

Wesley L. Furste, Cincinnati; Medical College of Ohio, Cincinnati, 1905; member of the Ohio State Medical Association; physician for Xavier University; aged 57; died, July 28, in Biloxi, Miss.

George Jennings, Buhl, Idaho; Eclectic Medical University, Kansas City, Mo., 1914; served during the World War; aged 54; died, August 4, at Twin Falls of cerebral hemorrhage.

Guy Allen Shaw, Loreauville, La.; College of Physicians and Surgeons, Baltimore, 1890; member of the Louisiana State Medical Society; aged 72; died, July 23, of coronary sclerosis.

Elmer E. Church, Enid, Okla.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; aged 78; died, August 4, of coronary occlusion.

Joel Reading Holliday, Oklahoma City; Barnes Medical College, St. Louis, 1907; member of the Oklahoma State Medical Association; aged 62; died, August 7, in Dalhart, Texas.

Mozart Monae-Lesser, New York; Columbia University College of Physicians and Surgeons, New York, 1899; aged 62; died, August 8, in Roslyn, N. Y., of carcinoma of the liver.

Ida B. Pasternack, Passaic, N. J.; New York Medical College and Hospital for Women, New York, 1915; aged 48; died, August 9, in Kamloops, B. C., Canada, of a brain tumor.

Albert John Atwood, Townsend, Mass.; Homeopathic Hospital College, Cleveland, 1885; aged 82; died, July 29, in the Burbank Hospital, Fitchburg, of carcinoma of the pancreas.

Jane Catherine Hughes Sullivan, Mankato, Minn.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902; aged 65; died, July 29, of coronary heart disease.

Charles Mark Freeman, Ada, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887; aged 78; died, July 28, of arteriosclerosis and heart disease.

Benjamin Franklin Holliday, Parkdale, Ark. (licensed in Arkansas in 1903); aged 81; died, August 17, in a hospital at Vicksburg, Miss., of cerebral hemorrhage and hypertension.

Thorleif T. Naae, Graettinger, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1900; member of the Iowa State Medical Society; aged 79; died in August.

John Fred Huey, Birmingham, Ala.; College of Physicians and Surgeons, Baltimore, 1887; member of the Medical Association of the State of Alabama; aged 75; died, August 14.

Isidore M. Lashinsky, New York; Fordham University School of Medicine, New York, 1919; member of the Medical Society of the State of New York; aged 53; died, July 19.

Barbara Jane Harris Leichthammer, Drexel Hill, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1940; aged 28; died, August 3, in a sanatorium at Allenwood.

George Washington Davis, Bessemer, Ala.; Howard University College of Medicine, Washington, D. C., 1925; aged 44; died, July 27, in St. Mary's Hospital, Detroit.

Richard Frank McKaig, Yoncalla, Ore.; College of Physicians and Surgeons, Keokuk, Iowa, 1894; aged 74; died, August 2, in the Sacred Heart General Hospital, Eugene.

Le Roy Gibbons Smith ✠ Mandan, N. D.; Saginaw (Mich.) Valley Medical College, 1901; aged 63; was killed, July 9, when his car struck a bridge abutment.

Albert L. Taylor, Brownwood, Texas; Memphis (Tenn.) Hospital Medical College, 1889; member of the State Medical Association of Texas; aged 75; died, July 19.

Joseph James Wymer ✠ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1906; aged 61; died, August 9, in Waveland, Miss.

Herman Duane Brown, Jackson, Mich.; Detroit College of Medicine, 1899; served during the World War; aged 63; died, August 11, of carcinoma of the kidney.

Alice May Parsons, Chicago; Rush Medical College, Chicago, 1933; aged 44; died, August 12, in the Chicago Memorial Hospital of chronic rheumatic heart disease.

Eugene Swayne, Philadelphia; Medico-Chirurgical College of Philadelphia, 1905; veteran of the Spanish-American and World wars; aged 67; died, August 14.

Tausbee Beckham Beatty ✠ Margaretville, N. Y.; Hahnemann Medical College and Hospital of Philadelphia, 1936; aged 31; died, August 7, in Beattyville, Ky.

Malcolm Campbell MacKinnon ✠ Aberdeen, Idaho; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1909; aged 59; died, August 10.

Harry Hallowell Sellers, Minneapolis; Baltimore Medical College, 1893; served during the World War; aged 71; died, August 15, in the Swedish Hospital.

John Henry Schuck, Colfax, Ind.; Hospital College of Medicine, Louisville, Ky., 1889; aged 78; died, August 8, in St. Elizabeth's Hospital, Lafayette.

Charles Summer Davis, Champaign, Ill.; Eclectic Medical Institute, Cincinnati, 1890; served during the World War; aged 75; died, July 31, of heart disease.

John M. Brown, Maysville, Mo.; Trinity Medical College, Toronto, Ont., Canada, 1888; aged 83; died, July 1, of cerebral hemorrhage and arteriosclerosis.

John Clifton Goudelock, New Albany, Miss.; University of Nashville (Tenn.) Medical Department, 1910; aged 58; died, July 24, of coronary thrombosis.

George A. Armstrong, Utica, N. Y.; University of the City of New York Medical Department, 1884; aged 82; died, August 9, of paralysis agitans.

Eugene C. Lindsey, Florence, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1895; aged 67; died, August 2, of heart disease.

Harry Dabol Gafney, Ware, Mass.; Harvard Medical School, Boston, 1903; aged 61; died, July 30, of cirrhosis of the liver and myocarditis.

John G. Barger, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1900; aged 77; died, August 4, of coronary occlusion.

Bailis S. Stokes, Delight, Ark.; University of Arkansas School of Medicine, Little Rock, 1902; aged 72; died, July 19, of cerebral hemorrhage.

Archibald Milton Campbell ✠ Lansing, Mich.; Detroit College of Medicine, 1898; aged 72; died, August 17, of carcinoma of the stomach.

John I. Higgs, East St. Louis, Ill.; Missouri Medical College, St. Louis, 1885; aged 81; died, July 15, in Sparta of coronary occlusion.

Wilbur Nathan Hunt, Burlington, Wash.; Iowa Medical College, Eclectic, Des Moines, 1883; aged 84; died, July 20, of paralysis agitans.

Oscar Luzerne Corliss, Belchertown, Mass.; University of Vermont College of Medicine, Burlington, 1881; aged 86; died in August.

Oliver Fletcher Best ✠ Providence, R. I.; University of the City of New York Medical Department, 1889; aged 79; died in August.

James Whitaker West, Live Oak, Fla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1905; aged 62; died, July 9.

William W. Gourley, Fulton, Ky.; Missouri Medical College, St. Louis, 1887; aged 85; died, August 12, of cerebral hemorrhage.

William M. Walden, Newburgh, Ind.; Louisville (Ky.) Medical College, 1886; aged 79; died, July 24, of hypostatic pneumonia.

Russell Edgar Hartry, Fort Francis, Ont., Canada; University of Toronto Faculty of Medicine, 1914; aged 53; died, August 7.

Raphael Smith Olsen, Lakeside, Ore.; College of Physicians and Surgeons, Baltimore, 1913; aged 56; died, August 11.

Vilroy Molby Connelly, Minneapolis; Barnes Medical College, St. Louis, 1902; aged 83; died, July 28, of heat prostration.

John F. Manning, Los Angeles; Medical School of Maine, Portland, 1879; aged 86; died, July 8, of cerebral hemorrhage.

Arthur Caire Sr. ✠ New Orleans; Tulane University of Louisiana School of Medicine, 1892; aged 73; died, July 16.

Howard Augustine Gibbs, Blandford, Mass.; Boston University School of Medicine, 1882; aged 82; died, August 10.

Frank Brennand Kirby ✠ Evanston, Ill.; Jefferson Medical College of Philadelphia, 1902; aged 63; died, August 20.

Paul Jones, Snow Hill, Md.; Jefferson Medical College of Philadelphia, 1875; aged 88; died, July 21, of myocarditis.

Lawrence Buckner Farish, Atmore, Ala.; Medical College of Alabama, Mobile, 1901; aged 62; died, July 21.

Mary Enastasia Minor, Toledo, Ohio; Pulte Medical College, Cincinnati, 1899; aged 77; died, August 6.

Thomas W. Allison, Caledon East, Ont., Canada; Trinity Medical College, Toronto, 1900; died, July 2.

Hester Maria Sutherland, Berkeley, Calif.; Cooper Medical College, San Francisco, 1902; died, July 9.

Joseph R. Farrior, Chipley, Fla.; Louisville (Ky.) Medical College, 1877; aged 87; died, August 2.

G. F. Moseley, Cross Keys, S. C.; Atlanta (Ga.) Medical College, 1888; aged 84; died, July 15.

Correspondence

THE NATIONAL NUTRITION

To the Editor:—In the fall of 1940 a nutrition conference on white bread announced in the press apparently following a suggestion of Surgeon General Parran (Nutrition and National Wealth: Dietary Deficiency Is Widespread and Serious, with More Than 40 per Cent of the Population on Inadequate Rations, *Technology Review* **42**:323 [Aug.] 1940) that 40 million Americans were suffering from vitamin deficiency. Then at the meeting of the first National Nutrition Conference for Defense, May 25-27, 1941, in Washington, that eminent bedside clinician Paul V. McNutt upped the General 5 million (what is 5 million Americans among bureaucrats?) and said that 45,000,000 "lack the foods we know are essential for health" and that "another 50,000,000 have impaired health because they do not eat the right food."

These statements, which were practically unsupported by any statistical survey, are so astonishingly at variance with the experience of my colleagues and myself in dispensary and general hospital practice, where we regularly see those on relief, WPA workers and others on an economic level which would assumedly lead to nutritional deficiency, that I began an investigation, the results of which I lay before you.

In reply to my inquiry the following hospitals kindly furnished me information:

At the Massachusetts General Hospital in the three years 1938, 1939 and 1940 there were admitted a total of 46,857 patients. On these a diagnosis of vitamin deficiency was pronounced in 111 cases, or 0.23 per cent (statistics furnished by Dr. Howard Sprague of the attending staff).

At Johns Hopkins Hospital in the ten years 1930-1940 there were admitted approximately 150,000 patients. Of these a diagnosis of vitamin deficiency was pronounced in 170 cases, or 0.14 per cent (statistics furnished by Dr. Edwin L. Crosby, assistant director and statistician).

To change the geography, at the County Hospital, Santa Barbara, Calif., from 1937 to 1940 there were 6,397 admissions with 26 cases of vitamin deficiency (statistics furnished by Dr. Luin Thacher of the staff).

At the University of Kansas Hospitals in three years there were 26 cases of vitamin deficiency in 19,152 admissions (inpatients). In the outpatient department there were 114 cases in approximately 80,000 new admissions.

At the Kansas City General Hospital in three years (1938-1940) there was a total of 36 cases of vitamin deficiency recorded in an average of 12,000 admissions annually.

If these figures are a guide to the incidence of vitamin deficiency in the United States, it is infinitely far below 40 per cent, or 95 million.

It is hardly possible to assume that the staffs of the Massachusetts General Hospital and Johns Hopkins Hospital do not recognize vitamin deficiency even in the subclinical forms when they see it.

Dr. Walter C. Alvarez of the Mayo Clinic wrote me: "I feel exactly as you do about the stampede over the vitamins. I have always felt that we have gone into this thing most unscientifically. Here at the clinic I just can't find patients whose troubles I think are due to clearcut vitamin deficiency."

Dr. Tom D. Spies states, in Cecil's Textbook of Medicine, "Its [beriberi or polyneuritis] incidence is high among pellagrins, alcoholic addicts and pregnant women." One of my obstetric friends told me "I have been looking for ten years for a case of polyneuritis complicating pregnancy and have yet to find it." So I wrote some obstetricians:

Dr. George R. Pendleton of Kansas City, Mo., compiled his statistics in charity ambulatory clinic, general hospital and private practice. From 1929 to 1939 there were 16,649 deliveries with no case of polyneuritis.

Dr. Joseph Baer of Chicago wrote me that he had seen *2* cases of polyneuritis in the last two years in about 9,000 cases of pregnancy.

Dr. L. A. Calkins, professor of obstetrics at the University of Kansas, told me he could remember only 1 case of polyneuritis in an experience of over 20,000 obstetric cases.

Dr. Buford Hamilton of Kansas City has seen two cases of polyneuritis in a consultation practice of 2,500 cases. Drs. Harold L. Gainey, Paul Gempel, J. Milton Singleton and Eugene H. Ferguson, all of Kansas City, have seen no cases in a combined experience of over 4,000 cases in the last five years. Drs. Kenneth Cox, Hugh G. Hamilton, Charles White, D. T.

Summary of Three Hundred Histories

I. Dietary Habits:
  1. Glasses of milk a week:
    23 cases.....none
    277 cases.....6–28 glasses
  2. Eggs a week:
    300 cases.....2 to 24 eggs
  3. Citrus fruits (oranges, lemons, limes, grapefruit and tomatoes):
    27 cases.....none
    66 cases.....1+
    95 cases.....2+
    56 cases.....3+
    56 cases.....4+
  4. Oatmeal:
    140 cases.....none
    36 cases.....occasional
    124 cases.....moderate
  5. Bread
    63 cases.....whole wheat
    101 cases.....white
    136 cases.....whole wheat and white and rye
  6. Carrots:
    26 cases.....0
    274 cases.....+
  7. Corn:
    35 cases.....0
    265 cases.....+
  8. Squash:
    172 cases.....0
    138 cases.....+
  9. Sweet potatoes:
    45 cases.....0
    255 cases.....+
  10. Spinach:
    36 cases.....0
    274 cases.....+

II. Possible Defective Absorption:
  1. Indigestion:
    248 cases.....0
    52 cases.....(gas, heartburn, dyspepsia)
  2. Peptic ulcer:
    2 cases.....healed
  3. Biliary Disease: No cases
  4. Diarrhea: No cases
  5. Teeth:
    73 cases.....bad (sepsis, snags, loss)
    37 cases.....fair
    36 cases.....plates
    154 cases.....good

III. History of Muscle Pains: None

IV. History of Night Blindness: None

V. History of Sore Tongue or Lips:
  295 cases.....none
  5 cases.....canker sores

IV. History of Cutaneous Eruptions:
  294 cases.....none
  4 cases.....attacks of boils
  2 cases.....folliculitis

VII. Persistent Goose Flesh of Thighs and Upper Arms: None

VIII. Pigmented Dermatitis:
  (*a*) Sock, glove or necklace type.....none
  (*b*) Scruffiness of skin over knees.....none

IX. Nails: Brittle in.....4 cases
  Hair dry in.....5 cases

X. Lips: No maceration

XI. Tongue: No cases of sore, red, ulcerated or atrophied

XII. Nervous System: No paresthesias

XIII. Blood Vitamin C: (78 cases)

	Vit. C Intake in Diet, No. of Cases	Blood Vit. C Level in Mg. per 100 Cc.	No. Cases	Avitaminosis Signs of Vit. C
0	7	0	0	0
1	17	0.0 –0.25	31	0
2	25	0.25–0.50	19	0
3	15	0.50–0.75	15	0
4	14	0.75–1.9	13	0

XIV. Physical examination of 1,265 men failed to show any instance of avitaminosis.

Vandel, A. B. Sinclair and W. C. Mixson, all of Kansas City, have seen a total of 13 cases of polyneuritis in a combined experience of over 3,600 obstetric cases in the last five years.

I wrote alcoholic addiction sanatoriums: Ralph (Kansas City, Mo.), Highland (Asheville, N. C.) and Wallace (Memphis, Tenn.). Wallace at Memphis had the highest rate, 206 cases in 1940, with 3 complicated by pellagra and 5 by polyneuritis. Highland Hospital, Asheville, said "The incidence has been minimum."

Spies, in the article on pellagra in Cecil's Text Book of Medicine (1940), states that there are 400,000 cases of pellagra in the United States. The only evidence he advances for this figure is the statement that in the Southern states 10 per cent of the inmates of the insane asylums are pellagrins. Dorn (U. S. P. H. S.) estimated in 1938 (the latest year statistics have been compiled) that there were 353,305 inmates of insane asylums in the United States. Allowing the South its due share, let us say there were 150,000 inmates in their asylums. This gives 15,000 pellagrins, leaving 385,000 to be found.

Landis, Carney and Page (Modern Society and Mental Disease, New York, Farrer & Rinehart, Inc., 1938) estimate that there are 590,000 inmates of mental hospitals in the United States, so on that basis it leaves about 375,000 pellagrins to be found—quite a lot when one considers that at the Massachusetts General Hospital there were 9 cases in three years, at the University of Kansas Hospitals 5 cases and at the General Hospital, Kansas City, 19 cases.

It may be argued that the hospital admission of full blown examples of vitamin deficiency is not an index of the incidence in the general population. I do not concur in that, but it is debatable. The fact that classic vitamin deficiencies are clinical rarities seems to have impinged on the nutrition experts' consciousness, so we hear of "subclinical" vitamin deficiency that can be discerned only by physicians who "possess the rather special training necessary to recognize the widespread prevalence of submarginal degrees of deficiency disease." This is the old bull—the general practitioner or the general internist is so dumb he can't recognize these fine points that are so clear to a government doctor.

But in order to check on this and obtain a survey of a cross section of the population, I asked Dr. J. G. Schnerdorf, who is physician to a large industrial plant in Kansas City, to examine a group of the employees. The employees are on a medium economic level. Dr. Schnerdorf and I prepared a questionnaire based on the literature of "submarginal" deficiencies. The survey required three months. A more detailed report is in preparation, but a summary follows.

Briefly the survey showed no clinical vitamin deficiency in the careful examination of 300 unselected employees, and no clinical vitamin deficiency observed in the physical examination of 1,265 men.

Particularly noticeable in this survey is the fact that blood levels of vitamin C are extremely variable and probably rise promptly on ingestion of vitamin C containing food.

Other studies (Williams, R. D.; Mason, H. L.; Wilder, R. M., and Smith, B. F.: Observations on Induced Thiamine Deficiency in Man, *Arch. Int. Med.* **66**:785 [Oct.] 1940. Meyers, F. M.: Possible Adaptation to a Low Vitamin B Intake, *Am. J. M. Sc.* **201**:785 [June] 1941. Lund, C. C., and Crandon, J. H.: Human Experimental Scurvy, THE JOURNAL, Feb. 22, 1941, p. 663) indicate that a low blood level of vitamin B and vitamin C can exist for a long time without clinical evidence of beriberi or scurvy. Certainly one must regard the reports of vague fatigue states, nervousness, insomnia, irritability and "marasmus" (whatever that is) "cured" by vitamin therapy and therefore due to vitamin deficiency with healthy skepticism as one does reports of the cure of ptosis, "enlargement of the legs above the ankles," hemiplegia and "regular reduction of golf score to the high seventies while under vitamin treatment."

I would not wish, naturally, these findings to be interpreted as casting any doubt on the validity of the vitamin doctrine or to imply that there should be any relaxation in the instruction of the public in the requirement of vitamin containing foods in the dietary. But they do indicate, I think, that the American public is getting its vitamins; in fact with modern food production, transportation, refrigeration and distribution it is pretty hard for an American to avoid vitamins on an ordinary diet. This seems to apply even to the population levels of low intelligence and income. It seems hardly necessary to conduct the campaign by indulging in propaganda the only object of which is to scare the public by insinuations as to its ignorance of food requirements and carelessness in obtaining a balanced diet.

LOGAN CLENDENING, M.D., Kansas City, Mo.

"AUROTHERAPY IN RHEUMATOID ARTHRITIS"

To the Editor:—Your editorial on aurotherapy in rheumatoid arthritis (THE JOURNAL, August 2, p. 368) does not seem to me a fair statement of the present status of gold therapy either in this country or in England.

At the last meeting of the American Rheumatism Association an entire morning was devoted to this subject. I believe the majority of the members of that association now agree that gold therapy is the treatment of choice for atrophic arthritis and think that it is especially valuable in early cases.

As far as my associates and I can determine, gold is the only known drug that specifically influences the course of atrophic arthritis in a favorable manner. Since our paper on this subject was written we have continued to use gold, and by reducing the weekly dosage to 0.05 Gm. of sodium gold thiomalate, which contains 50 per cent gold, we have reduced the number of mild reactions and almost eliminated serious reactions and have not had any deaths from the treatment.

I believe that any good internist who can see the patient with atrophic arthritis once a week can use aurotherapy with relative safety and should use it in the treatment of this disease.

J. ALBERT KEY, M.D., St. Louis.

MAGNIFICATION OF SPERMATOZOA BY ELECTRON MICROSCOPE

To the Editor:—In order to set at rest the minds of any other readers who may have seen our preliminary report of "Magnification of Spermatozoa by Means of the Electron Microscope" in THE JOURNAL, May 31, we would refer to certain points in a communication recently appearing in one of the issues of THE JOURNAL making reference to this article.

The essential things pointed out in the preliminary report are that the structures described were viewed under a magnification of twenty-seven thousand diameters and can therefore not be compared with the microscopic anatomy formerly recognized at two or three thousand diameters by the use of an oil immersion lens. Furthermore, the sperm described in the article appeared to be "pear shaped" and the irregularity at the vertex of the head seemed to suggest the possibility of the presence there of a "distinct organ." Future studies with the same or more potent instruments should establish standards, both of mensuration and of anatomy, and may possibly aid in the recognition of biologic criteria for normal and abnormal male germ cells.

Only with this in mind can comparisons and investigations lead to useful results.

FRANCES SEYMOUR, M.D.
MOSES BENMOSCHE, M.D.
New York.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Chicago, Feb. 16-17, 1942. Council on Medical Education and Hospitals, Sec., Dr. William D. Cutter, 535 N. Dearborn Street, Chicago.

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, September 13, page 955.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Part III. Baltimore and New York City, October; Boston, November. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Written.* Nov. 3. Final date for filing application is Sept. 23. *Oral.* Dec. 12-13. Final date for filing application is Nov. 8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* April, in advance of the meeting of the American College of Physicians and June, in advance of the meeting of the American Medical Association. Applications should be on file 6 weeks in advance of the date of oral examination. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written. Part I. Group B.* Various centers, Jan. 3. Final date for filing application is Oct. 6. *Oral. Part II. Groups A and B.* Atlantic City, May or June. Final date for filing application is March 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* March 7. Final date for filing application is Dec. 1. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Washington, January. Final date for filing application is Nov. 1. Sec., Dr. Guy A. Caldwell, 3503 Prytania St., New Orleans, La.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral and Written. All Groups.* Philadelphia, June, preceding the meeting of the American Medical Association. Final date for filing application is March 1. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha, Neb.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Philadelphia, March or April, at the time of the Region I meeting of the American Academy of Pediatrics. Cleveland, May, at the time of the Region III meeting of the American Academy of Pediatrics. Los Angeles, May, at the time of the Region IV meeting of the American Academy of Pediatrics. *Written.* Locally, approximately 6 weeks in advance of the date of oral examination. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Oral.* New York, Dec. 19-20. Final date for filing application is Oct. 5. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: *Oral. All Groups.* Atlantic City, June 4. Final date for filing application is April 1. Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave., S. W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written. Part I.* Various centers, Oct. 6. *Oral. Part II.* New York Nov. 10-11. A meeting of the board will follow on the 12th. Sec., Dr. J. Stewart Rodman, 225 S. Fifteenth St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written.* Various centers, December. *Oral.* Chicago, February. Final date for filing application is Nov. 1. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Utah July Report

The Utah State Board of Medical Examiners reports the written examination for medical licensure held at Salt Lake City, July 14, 1941. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Fifteen candidates were examined, all of whom passed. Eight physicians were licensed to practice medicine by reciprocity and 1 physician so licensed on endorsement of credentials of the National Board of Medical Examiners. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Northwestern University Medical School	(1940) 89, (1941)		87*
Rush Medical College	(1940) 82, 83, 86, 87, 87, 87, 88,		88
St. Louis University School of Medicine		(1940)	80
Washington University School of Medicine		(1940)	84
Temple University School of Medicine		(1940)	84
University of Pennsylvania School of Medicine		(1940)	84
Universität Zürich Medizinische Fakultät		(1935)	83

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Stanford University School of Medicine		(1939)	California
George Washington University School of Medicine		(1940)	California
University of Louisville School of Medicine		(1940)	Kentucky
Louisiana State University School of Medicine		(1938)	Arizona
Harvard Medical School		(1931)	N. Carolina
Washington University School of Medicine	(1937), (1939)		Missouri
Woman's Medical College of Pennsylvania		(1916)	Penna.

School	LICENSED BY ENDORSEMENT	Year Grad.
Duke University School of Medicine		(1938)

* This applicant received the M.B. degree and will receive the M.D. degree on completion of internship. License has not been issued.

Colorado Endorsement Report

The Colorado State Board of Medical Examiners reports 19 physicians licensed to practice medicine by endorsement on July 1. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists	(1937), (1939)		N. B. M. Ex.
University of California Medical School		(1934)	California
Northwestern University Medical School		(1894)	Iowa
Rush Medical College		(1934)	Michigan
State University of Iowa College of Medicine		(1939)	Iowa
University of Kansas School of Medicine		(1937)	Kansas
Detroit College of Medicine		(1904)	Michigan
Washington University School of Medicine	(1939), (1940)		Missouri
University of Nebraska College of Medicine	(1938), (1940, 6)		Nebraska
Columbia University College of Physicians and Surgeons		(1936)	N. B. M. Ex.
Medical College of Virginia		(1940)	Virginia

Oregon Reciprocity Report

The Oregon State Board of Medical Examiners reports 9 physicians licensed to practice medicine by reciprocity on July 25. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists		(1941, 2)	Washington
University of Kansas School of Medicine		(1939)	Kansas
Louisiana State University School of Medicine		(1940)	Minnesota
University of Michigan Medical School		(1937)	Michigan
Washington University School of Medicine		(1936)	Missouri
Creighton University School of Medicine		(1928)	Nebraska,
(1937) Michigan			
University of Wisconsin Medical School		(1939)	Wisconsin

Rhode Island July Report

The Rhode Island Board of Examiners in Medicine reports the written examination for medical licensure held at Providence, July 10-11, 1941. The examination covered 8 subjects and included 50 questions. An average of 80 per cent was required to pass. Eight candidates were examined, all of whom passed. One physician was licensed to practice medicine on endorsement of credentials of the National Board of Medical Examiners. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1940)	87.7
Rush Medical College		(1923)	86
Harvard Medical School		(1937)	93.2
Tufts College Medical School		(1939)	89.7
Columbia University College of Physicians and Surgeons	(1936) 90.8,	(1939)	90.2
Hahnemann Medical College and Hospital of Philadelphia		(1940)	84.6
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1938)	88

School	LICENSED BY ENDORSEMENT	Year Grad.
Harvard Medical School		(1929)

Vermont June Report

The Vermont Board of Medical Registration reports the written examination for medical licensure held at Burlington, June 17-19, 1941. The examination covered 12 subjects and included 90 questions. An average of 75 per cent was required to pass. Thirteen candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Columbia University College of Physicians and Surgeons		(1940)	88.2
University of Vermont College of Medicine	(1941)*		84.4,
86, 87.4, 88.1, 88.1, 88.6, 88.7, 88.7, 89.8, 91.8			
McGill University Faculty of Medicine		(1939)	87.1
American University of Beirut School of Medicine		(1931)	87.1

Three physicians were licensed to practice medicine on endorsement of credentials of the National Board of Medical Examiners from March 24 through July 18. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.
Harvard Medical School		(1938)
New York Medical College and Flower Hospital		(1937)
University of Vermont College of Medicine		(1940)

* Licenses have not been issued.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Refusal of Trial Court to Require Party to Submit to Spinal Puncture Not Error.—The plaintiff, a man aged 47, was injured in October 1936 in an automobile accident because of the negligence of an employee of the defendant corporation. Thereafter the plaintiff was hospitalized for more than six months for certain unstated conditions in his back, which he alleged were the result of the accident. For four months of that period his back was in a cast, and in June 1938 at the time of the trial of the suit that the plaintiff subsequently instituted against the defendant he claimed that he was unable to walk without a brace. He claimed also that his throat had been injured and that as a result hoarseness developed which was still present at the time of the trial. The defendant attributed the plaintiff's condition to syphilis and claimed that it was not the result of the accident. From a judgment in favor of the plaintiff, the defendant appealed to the Supreme Court of Colorado.

At the beginning of the trial the trial court had overruled a motion of the defendant to require the plaintiff to submit to a spinal puncture to determine the presence of syphilis. This action of the trial court, in the opinion of the Supreme Court, was not an abuse of its discretion. An order granting the motion, said the Supreme Court, would have been an invasion of the plaintiff's rights and beyond the court's authority without the consent of the plaintiff. That a court may order a plaintiff in a personal injury suit to submit to a physical examination is a proposition so well settled as to need no citation of authorities, but the rule may not be extended so far as to require the plaintiff, under the guise of a physical examination, to furnish samples of his bodily components to be used for the purpose of chemical analysis. It is not requisite that he do this to make out his own case, and, a fortiori, it is not required of him in order to bolster up his adversary's defense or perhaps, if the examination should be negative, to shatter such defense entirely. Even if there are court decisions to the contrary, and none were cited to the court, this court would not be disposed to follow them. Furthermore, had the fact that syphilis existed been determined with certainty, that fact would not have been conclusive, because a man who has syphilis can sustain a back injury as the result of trauma as well as one who is free from the disease. It would have done no more than furnish evidence of something that might be the cause of the plaintiff's continuing disability or might not. It would not be irrelevant as evidence because not conclusive if the facts were ascertainable without an unwarranted invasion of the plaintiff's right to the security of his person, since ordinarily any fact which makes probable the existence of another fact in dispute is relevant to prove the disputed fact.

The defendant next assigned error in the fact that the trial court overruled its objection to a hypothetical question put to a physician called as a medical expert by the plaintiff. The physician was asked whether certain pathologic conditions disclosed by a roentgenogram taken of the plaintiff were the result of a severe injury that occurred as of October 1936, the date of the accident in question. The physician answered "I would say very likely it is the result of the injury." As we view the matter, said the court, this is an expression of the physician's opinion that the accident and injury were an adequate cause to produce the pathologic condition that he found. The defendant's argument in support of the proposition that syphilis might be the cause of the plaintiff's continuing disability and that the defendant be permitted to show it is no different in kind from the plaintiff's argument that the accident might have caused the pathologic condition which the roentgenogram disclosed. There was no error in overruling the objection to the question. Whether the physician of his own knowledge knew of the facts of the accident and the injury other than from his examination is not material. An expert may testify on an assumed state of facts if the assumptions have a reasonable basis in the evidence, and the court concluded that they did.

At the trial the defendant produced as witnesses two physicians who had been attending physicians to the plaintiff. The trial court refused to permit the physicians to testify on the ground that their testimony, without the consent of the plaintiff, was forbidden by a Colorado statute reading in part as follows:

> "A physician or surgeon duly authorized to practice his profession under the laws of this state, or any other state, shall not, without the consent of his patient, be examined as to any information acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient . . ." (Section 9, Chapter 177, 1935 C. S. A.)

Doubtlessly, said the court, the testimony of both of these physicians was relevant and material to the issues involved, but it was not competent because it is the policy of the law to preserve information procured from a patient by a physician for the purpose of treating him as a secret between them and inviolate except with the consent of the patient, and in this case such consent was not given. The trial court committed no error in excluding the testimony of the physicians.

For the reasons stated, the judgment in favor of the plaintiff was affirmed.—*Riss & Co., Inc., v. Galloway, 114 P. (2d) 550 (Colo., 1941).*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 19-23. Dr. William P. Wherry, 107 South 17th St., Omaha, Executive Secretary.

American Academy of Pediatrics, Boston, Oct. 8-11. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Clinical and Climatological Association, Skytop, Pa., Oct. 16-18. Dr. Francis M. Rackemann, 263 Beacon St., Boston, Secretary.

American College of Surgeons, Boston, Nov. 3-7. Dr. Frederic A. Besley, 40 East Erie St., Chicago, Secretary.

American Public Health Association, Atlantic City, N. J., Oct. 14-17. Dr. Reginald M. Atwater, 50 West 50th St., New York, Executive Secretary.

American Roentgen Ray Society, Cincinnati, Sept. 23-26. Dr. Carleton B. Peirce, Royal Victoria Hospital, Montreal, Canada, Secretary.

American Society of Tropical Medicine, St. Louis, Nov. 11-14. Dr. E. Harold Hinman, Wilson Dam, Ala., Secretary.

Associated Anesthetists of the United States and Canada, Boston, Nov. 3-7. Dr. C. J. Wells, 1932 S. Salina St., Syracuse, N. Y., Secretary.

Association of Military Surgeons of the United States, Louisville, Ky., Oct. 29-Nov. 1. Colonel James M. Phalen, Army Medical Museum, Washington, D. C., Secretary.

Central Association of Obstetricians and Gynecologists, New Orleans, Oct. 2-4. Dr. William F. Mengert, 515 Newton Road, Iowa City, Secretary.

Clinical Orthopaedic Society, Cleveland and Akron, Ohio, Oct. 3-4. Dr. Myron O. Henry, 825 Nicollet Ave., Minneapolis, Secretary.

Delaware, Medical Society of, Wilmington, Oct. 7-8. Dr. C. L. Munson, 1015 Washington St., Wilmington, Secretary.

District of Columbia, Medical Society of the, Washington, Sept. 30-Oct. 2. Mr. Theodore Wiprud, 1718 M Street N.W., Washington, Secretary.

Indiana State Medical Association, Indianapolis, Sept. 23-25. Mr. Thomas A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.

Inter-State Postgraduate Medical Association of North America, Minneapolis, Oct. 13-17. Dr. Tom B. Throckmorton, 406 Sixth Ave., Des Moines, Iowa, Secretary.

Kentucky State Medical Association, Louisville, Sept. 29-Oct. 3. Dr. Arthur T. McCormack, 620 South Third St., Louisville, Secretary.

Mississippi Valley Medical Society, Cedar Rapids, Iowa, Oct. 1-3. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Nevada State Medical Association, Elko, Sept. 26-27. Dr. Horace J. Brown, P. O. Box 698, Reno, Secretary.

Omaha Mid-West Clinical Society, Omaha, Oct. 27-31. Dr. J. D. McCarthy, 1036 Medical Arts Bldg., Omaha, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 6-9. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh, Secretary.

Southern Medical Association, St. Louis, Nov. 10-13. Mr. C. P. Loranz, Empire Bldg., Birmingham, Ala., Secretary.

Southern Minnesota Medical Association, Mankato, Sept. 29. Dr. Nelson W. Barker, 102 Second Ave., Rochester, Secretary.

Tri-State Medical Society of Texas, Louisiana and Arkansas, El Dorado, Ark., Sept. 23-24. Dr. William Hibbits, 209 Pine St., Texarkana, Tex., Secretary.

Vermont State Medical Society, Burlington, Oct. 2-3. Dr. Benjamin F. Cook, 154 Bellevue Ave., Rutland, Secretary.

Virginia, Medical Society of, Virginia Beach, Oct. 6-8. Miss A. V. Edwards, 1200 East Clay St., Richmond, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1931 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

11:1-40 (July) 1941

Treatment of Severe Asthma. H. J. Climo, Montgomery.—p. 1.
Management of Allergic Case. G. W. Warrick, Birmingham.—p. 4.
Obstetric Analgesia and Anesthesia. W. G. McCown, Huntsville.—p. 11.
Drug Eruptions. J. S. Snow, Birmingham.—p. 14.
Diagnosis and Treatment of Intestinal Polyps. F. M. Thigpen, Montgomery.—p. 17.
Gallbladder Surgery: Indications and Contraindications. C. C. Rouse, Mobile.—p. 24.

American Journal of Medical Sciences, Philadelphia

202:1-156 (July) 1941

*Types of Orthostatic Hypotension and Their Treatment. W. A. Jeffers, H. Montgomery and A. C. Burton, Philadelphia.—p. 1.
*Hypertension and Pressor Activity of Heated Extracts of Human Kidneys. E. M. Landis, Charlottesville, Va.—p. 14.
Sustained Hypertension Following Experimental Unilateral Renal Injuries: Effects of Nephrectomy. B. Friedman, J. Jarman and P. Klemperer, New York.
*Geriatric Aspect of Pulmonary Tuberculosis. J. T. Freeman and C. A. Heiken, Philadelphia.—p. 29.
V. Human Constitution and Syphilitic Infection. W. L. Fleming, Chapel Hill, N. C., and J. E. Moore, Baltimore.—p. 38.
*Cephalin Flocculation Test in Cirrhosis of Liver. F. M. Hanger, New York, and A. J. Patek Jr., Welfare Island, N. Y.—p. 48.
Causes of Painless Gastroduodenal Hemorrhage. E. Moschcowitz, S. Mage and V. H. Kugel, New York.—p. 52.
*Appraisal of Medical versus Surgical Treatment of Idiopathic Ulcerative Colitis: Follow-Up Data on Fifty Cases. K. A. Elsom and L. K. Ferguson, Philadelphia.—p. 59.
Complete Roentgen Ray Studies of Gastrointestinal Tract in 400 Arthritics. E. W. Spackman, Waukegan, Ill.; T. F. Bach, C. W. Scull and R. Pemberton, Philadelphia.—p. 68.
Relation Between Plasma and Dietary Ascorbic Acid. A. H. Bryan, Dorothea F. Turner, Ruth L. Huenemann and Gertrude Lotwin, Chicago, Ill.—p. 77.
Effectiveness of Methyl Testosterone Administered Orally. J. Eidelsberg and I. Madoff, New York.—p. 83.
Scope of Artificial Impregnation in Barren Marriage. S. L. Israel, Philadelphia.—p. 92.
Observations on Oral Administration of Ragweed Oil in Patients Hypersensitive to Ragweed Oil. J. M. Sheldon, Ann Arbor, Mich., and F. Blumenthal, Eloise, Mich.—p. 98.
Clinical Investigations with Curare in Organic Neurologic Disorders. A. E. Bennett, Omaha.—p. 102.

Orthostatic Hypotension.—Jeffers and his associates made a clinical study of orthostatic hypotension, using normal and sympathectomized persons as controls. Blood pressure, pulse rate, digital blood flow and skin temperature tests were employed. Orthostatic persons were found to have either slight or severe impairment of reflex vasomotor functions or mechanical defects in the circulatory system. Orthostatic hypotension was associated with lesions of the central and peripheral nervous system (communicating hydrocephalus, tabes dorsalis and nerve injury secondary to arterial occlusion) with the postinfectional state and with venous angioma. The authors present a clinical evaluation of orthostatic hypotension and outline a rationale of treatment.

Hypertension and Pressor Activity of Kidney Extracts.—Landis reports experiments in which heated human kidney extracts were prepared from tissue, obtained at necropsy, of 16 persons with normal blood pressure and of 34 persons with severe hypertension. Anesthetized, nephrectomized rabbits were used for assay. It was found that kidney extracts prepared from persons with benign hypertension and chronic glomerulonephritis were no more active than those derived from normal kidneys. The four extracts which showed pressor activity outside the normal range were obtained from persons with malignant nephrosclerosis. But even here, because of variations in activity, no clear relation could be demonstrated by these methods between blood pressure during life and the renin content of kidney tissue after death.

Geriatric Aspect of Pulmonary Tuberculosis.—Freeman and Heiken report that in 3,000 routine postmortem examinations pulmonary tuberculosis was present in 25 per cent of the patients. The older age group, 60 or more years of age, comprised one third of the total necropsy incidence. In this fraction 28 per cent of the total incidence of pulmonary tuberculosis was found. Eleven per cent of these 28 per cent disclosed the fibro-ulcerative, 8 per cent the miliary and 65 per cent the healed fibroid form of pulmonary tuberculosis. Apparently, in persons more than 60, 5 per cent have fibro-ulcerative, 0.5 per cent miliary and 15 per cent healed fibroid pulmonary tuberculosis. The active form of the disease was as common in elderly white persons as in elderly Negroes; the miliary form was somewhat more common in the elderly Negro and the fibroid form much more common in the elderly white person. The symptom complex is similar to that of younger persons but may be obscured by the changes of increasing age or be interpreted as due to senile debility. Cough and expectoration (95 and 87 per cent, respectively) were the most common complaints, but hemorrhage, fever and night sweats were not uncommon. As a rule, the symptoms of onset of the pulmonary condition were mild. A positive family history of 26 per cent was encountered in 136 hospital protocols of older persons. Roentgenograms confirmed the clinical impression in every case in which they were used and showed cavitation in 60 per cent of the patients. In 69 per cent positive sputums were obtained by the routine smear method. Diabetic patients, constituting 11 per cent of this group, had positive sputums and 80 per cent had cavitation. Active therapy was negligible. The authors find that the large group of older diseased persons represent a major obstruction to the national tuberculosis program of the segregation of open cases. Earlier diagnosis, a more stringent isolation and more active treatment are advocated.

Cephalin Flocculation Test.—Hanger and Patek employed the cephalin flocculation test in 40 cases of cirrhosis of the liver in which a highly nutritious diet supplemented by vitamin B concentrate had been given for the purpose of testing the correlation between the clinical course and the intensity of the reaction. They arrived at the following conclusions: 1. Irrespective of apparent clinical improvement, the ultimate prognosis in patients with Laënnec's disease who persistently show strong positive reactions is not favorable. 2. Progressive decrease in the intensity of the cephalin flocculation reaction often accompanies clinical improvement and a return of blood proteins to normal values. 3. A negative reaction does not exclude the diagnosis of cirrhosis (persistently negative tests tend to have a relatively favorable course). 4. The intensity of the flocculation reaction does not parallel the presence or absence of ascites in cases of cirrhosis of the liver. Cases of alcoholic cirrhosis with jaundice were regularly observed to give a positive reaction.

Idiopathic Ulcerative Colitis. — Elsom and Ferguson studied two comparable groups of patients with idiopathic ulcerative colitis of which the one group (23 patients) received medical treatment only. In the other group (27 patients) various sidetracking operations were performed. The mortality rate for the two groups was practically equal (34 per cent as against 26 per cent). A comparison of the subsequent developments led the authors to conclude that those who were operated on were more nearly restored to normal health than those who were not. In the medically treated group, continued or intermittent manifestations of the disease were observed. The patients are either in poor or only fair health. Those operated on made, in some cases, dramatic recoveries. The great majority returned to their previous occupations and led, by their own definition, a normal life. They are satisfied with their treatment, even though it entails a permanent fistula. The procedure of choice is a preliminary ileostomy with subsequent colectomy in stages, if indications for it exist. The authors emphasize the necessity of close cooperation of the internist and the surgeon if best results are to be obtained.

American Journal of Pathology, Boston

17:293-468 (May) 1941

Osseous Findings in Chronic Renal Insufficiency in Adults. A. M. Ginzler and H. L. Jaffe, New York.—p. 293.
Histochemical Study of Distribution of Alkaline Phosphatase in Various Normal and Neoplastic Tissues. E. A. Kabat and J. Furth, New York.—p. 303.
Comparative Experimental Studies of 200 Kilovolt and 1,000 Kilovolt Roentgen Rays: III. Biologic Effect on Skin of Albino Rat. E. A. Gall, J. R. Lingley and J. A. Hilcken, Boston.—p. 319.
Alterations in Nuclear Viscosity During Experimental Carcinogenesis Determined by Ultracentrifugation. E. V. Cowdry and F. X. Paletta, St. Louis.—p. 335.
Acute Necrotizing Arteritis, Aortitis and Auriculitis Following Uranium Nitrate Injury in Dogs with Altered Plasma Proteins. R. L. Holman, Chapel Hill, N. C.—p. 359.
Cytologic Response of Rats and Mice to Strain of Greening Streptococci. P. Gross, F. B. Cooper and Jane D. Phillips, Pittsburgh.—p. 337.
Reticulum Cell Sarcoma of Lymph Nodes. S. Warren, Boston, and J. P. Picena, Rosario, Argentina, South America.—p. 385.
Observations with Differential Stains on Human Islets of Langerhans. G. Gomori, Chicago.—p. 395.
Equine Encephalitis in Man. Alexandra Adler, Boston.—p. 407.
Infection of Normal and Passively Immunized Chick Embryos with Corynebacterium Diphtheriae. W. J. Cromartie, Nashville, Tenn.—p. 411.
Phagocytic Activity of Oligodendroglia and Amphicytes in Brain, Spinal Cord and Semilunar Ganglion of Mouse During Inanition. W. Andrew, Dallas, Texas.—p. 421.

American Journal of Public Health, New York

31:545-668 (June) 1941

Rapid Treatment of Early Syphilis with Multiple Injections of Mapharsen: Preliminary Report of 275 Cases Treated with Mapharsen Alone and 141 Cases Treated with Mapharsen and Fever. E. W. Thomas and Gertrude Wexler, New York.—p. 545.
Study of Standard Methods for Detection of Coliform Organisms in Raw and Treated Waters. E. K. Borman, Elizabeth D. Robinton, Hartford, Conn., and C. A. Stuart, Providence, R. I.—p. 557.
Five Year Follow-Up of Discharges from Maryland Tuberculosis Sanatoriums. R. L. Gauld, C. H. Halliday, V. F. Cullen and W. T. Fales, Baltimore.—p. 568.
Relationship of Public Health Activities to Real Need. W. D. Burkhalter, Montgomery, Ala.—p. 577.
Where is Dentistry Going in Public Health? N. Sinai, Ann Arbor, Mich.—p. 583.
Public Health and the Law. J. A. Tobey, New York.—p. 587
Institutional Outbreak of Poliomyeltis. A. C. Silverman, Syracuse, N. Y.—p. 593.
Epidemiologic Investigation of Rural Typhoid with Aid of Vi Agglutination Test. Calista P. Eliot, Baltimore, and W. R. Cameron, Hagerstown, Md.—p. 599.
Ohio River Pollution Survey, in Relation to Pollution Problems in Lower Ohio River Basin. E. S. Tisdale, Cincinnati.—p. 605.
Epidemiology of Rheumatic Fever. J. R. Paul, New Haven, Conn.—p. 611.
Study of Dust Conditions in Tri-State Mining District of Oklahoma, Kansas and Missouri. C. C. Dills, Jefferson City, Mo.—p. 619.

31:669-768 (July) 1941

Composition of Diesel Engine Exhaust Gas. H. H. Schrenk and L. B. Berger, Pittsburgh.—p. 669.
*Sulfonamide Therapy in Male Gonorrhea: Comparative Study. R. Deakin, M. Wortman and R. LaForce, St. Louis.—p. 682.
Contribution of Student Health Service to Adult Health Education. C. E. Shepard, Palo Alto, Calif., and I. W. Sander, Detroit.—p. 687.
Clinical Consultations and Hospital Care Services in Maternal and Child Health Program. Martha L. Clifford, Hartford, Conn.—p. 693.
Objectives of Regular Child Health Supervision: Are They Being Met by the Average Child Health Conference? A. Christie, San Francisco.—p. 697.
Assessment of Nutrition of Rural Population in Tennessee. J. B. Youmans, Nashville, Tenn.—p. 704.
Simplification of Records Through Analysis of Procedures. J. O. Dean and M. C. Henderson, Washington, D. C.—p. 709.
What Can the Dental Health Worker Teach Regarding Nutrition and Diet? W. R. Davis, Lansing, Mich.—p. 715.
Advances in Methods of Murine Typhus Control. R. J. Boston, Atlanta, Ga.—p. 720.

Sulfonamide for Male Gonorrhea.—Deakin and his associates treated 519 unselected cases of male gonorrhea with seven different chemotherapeutic agents. Their conclusion is that sulfathiazole appears to be the most effective drug at present on the market for the treatment of male gonorrhea. It is well tolerated, relatively nontoxic and induces noninfection rapidly. Their comparative study of sulfanilamide, sulfapyridine and sulfathiazole indicated that 4 of 20 men could be reasonably expected to be cured at the end of a week when treated with a moderate daily dose of sulfanilamide combined with mild local therapy. Two Gm. of sulfapyridine daily for ten days without local treatment cured 15 of 20 men. On the other hand, 19 of 20 men will be cured at the end of a week by the sole oral use of 20 Gm. of sulfathiazole over a period of five days.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

25:397-526 (July) 1941

Reactivity of Serum and Spinal Fluid of Leprous Patients with Spirochetal Suspensions. H. Eagle, R. B. Hogan, C. F. Mohr, Baltimore, and S. H. Black, Carville, La.—p. 397.
Reactivity of Serum of Malarial Patients with Spirochetal Suspensions. H. Eagle, Baltimore; J. R. S. Mays, Milledgeville, Ga.; R. B. Hogan, Baltimore, and L. E. Burney, Atlanta, Ga.—p. 406.
Studies on Role of Spirochaeta Pallida in Wassermann Reaction: II. Relation of Spirochetal Antibodies to Wassermann Reagin. J. A. Kolmer, Clara C. Kast and Elsa R. Lynch, Philadelphia.—p. 412.
Genitoinfectious Lesions in Male Complicated by Gonorrhea. G. Shropshear and D. K. Hibbs, Chicago.—p. 435.
*Treatment with Sulfapyridine of Gonorrheal Urethritis in Male: Analysis of Eighty-Seven Cases. L. W. LaTowsky, F. Knight, and C. A. W. Uhle, Philadelphia.—p. 445.
Preliminary Report of Sulfanilamide, Sulfapyridine and Local Therapy in Gonococcic Infection in Women. H. C. Hasseltine, Lucile R. Hac, F. L. Adair and D. K. Hibbs, Chicago.—p. 454.
Report of Committee on Survey of Research of American Neisserian Medical Society. Ruth B. Thomas, Dover-Foxcroft, Maine.—p. 461.
Divided Doses of Typhoid H Antigen Vaccine in Treatment of Syphilis. G. V. Kulchar and J. F. Card, San Francisco.—p. 466.
Treatment of Neurosyphilis with New Pentavalent Arsenical, Aldarsone. L. Spiegel, W. Liefer and H. Sarason, New York.—p. 472.
Therapeutic Activity of Organic Arsenical Compounds in Syphilis of Rabbits in Relation to Urinary Excretion of Arsenic. J. A. Kolmer, H. Brown and Anna M. Rule, Philadelphia.—p. 486.
Present Status of Gonorrheal Vaginitis Problem. R. M. Lewis, New Haven, Conn.—p. 496.
Psychosis During Administration of Sulfanilamide. J. R. Waugh, Norfolk, Va.—p. 504.
Effects of Sobisminol Solution Orally in Experimental Syphilis. P. J. Hanzlik and W. Van Winkle Jr., San Francisco.—p. 508.

Sulfapyridine for Gonorrheal Urethritis.—La Towsky and his co-workers used sulfapyridine in the treatment of 87 men with gonorrheal urethritis. Twenty-five of them defaulted, leaving 62 who were followed until cure or failure resulted. Of the 57 patients who were eventually cured by sulfapyridine, 14 had complications; 9 epididymitis, 3 balanoposthitis and 2 arthritis. All patients received the drug two, three or four times daily. The average dose was 23.5 Gm. given over an average of eleven days. Evidence of bacteriologic cure, as revealed by culture, was usually obtained fifty-one days from the beginning of specific treatment. The final provocative test for cure was two or more negative smears and cultures of prostatic fluid. Cultures were deemed of greater diagnostic value in both symptomatic and asymptomatic gonorrhea. Complications during treatment developed in 3 patients: epididymitis in 2 and periurethral abscess in 1. These 3 patients were not fully cooperative. They failed to appear at the clinic on the designated day, they had coitus or they drank alcohol. All complications eventually yielded to treatment with sulfapyridine. The time elapsing between the disappearance of the symptoms and the last positive culture averaged seventeen and seven-tenths days and ranged from two to fifty days. This interval constitutes a carrier state.

American Review of Tuberculosis, New York

44:1-122 (July) 1941

History of Development of Purified Protein Derivative Tuberculin. Florence B. Seibert, Philadelphia.—p. 1.
Tuberculin Purified Protein Derivative: Preparation and Analyses of Large Quantity for Standard. Florence B. Siebert, Philadelphia, and J. T. Glenn, Glenolden, Pa.—p. 9.
Pulmonary Insufficiency: I. Discussion of Physiologic Classification and Presentation of Clinical Tests. A. Cournand and D. W. Richards Jr., New York.—p. 26.
*Thrombosis of Pulmonary Artery. J. W. Savacool and R. Charr, Philadelphia.—p. 42.
Leukocyte Count and Recovery from Tuberculosis. C. H. Boissevain and E. N. Chapman, Colorado Springs, Colo.—p. 58.
*Laboratory Procedures in Intestinal Tuberculosis. A. L. Kruger and H. J. Perlberg, Jersey City, N. J.—p. 73.
Influence of Posture on Intrapleural Pressure in Artificial Pneumothorax. S. Cohen, Jersey City, N. J.—p. 78.
Chemotherapy of Experimental Tuberculosis. H. H. Perlman, H. Brown and G. W. Raiziss, with assistance of Anna Rule, Philadelphia.—p. 83.
Spontaneous Closure of Tuberculous Cavities: Roentgenologic Study. E. R. Wiese, White Haven, Pa.—p. 92.
Present Status of Tuberculin Patch Test. Camille Kereszturi, New York.—p. 94.

Thrombosis of Pulmonary Artery.—Savacool and Charr studied 12 tuberculous patients who at necropsy showed massive thrombosis of the pulmonary artery. Only cases in which there was a large thrombus almost or completely occluding the main trunk of the pulmonary artery or its main branches were

included in this study. In 8 the thrombus was in the right pulmonary artery, in 2 in the left artery and in 2 it extended into both arteries. The preponderance of thrombosis in the right pulmonary artery is in keeping with the observations of the 88 reported in the literature (41 right, 4 left and 43 bilateral). Even when the thrombus occurred in both arteries, the one in the right artery looked older, suggesting that it originated there. This preponderance of thrombosis in the right pulmonary artery may be due to the anatomic relation of the arteries to their adjacent structures. On the right side, the artery is crossed over by the arch of the aorta and at the hilus it is "squeezed" between the vein and the bronchus. On the left side, the artery is relatively free. The principal clinical features are dyspnea, cyanosis, pain in the chest, restlessness, mental confusion, weak thready pulse, low blood pressure and ankle edema. This condition simulates spontaneous pneumothorax complicating pulmonary tuberculosis.

Laboratory Procedures in Intestinal Tuberculosis.—According to Kruger and Perlberg, who investigated the diagnostic value of Woldman's phenolphthalein test and of the human feces in determining intestinal tuberculosis, both of these criteria have no direct diagnostic significance. However, they believe that these criteria should be applied by way of differential diagnosis, as other diseases which give a similar roentgenologic picture are thefeby eliminated. The diagnosis of intestinal tuberculosis can be made on the following findings: (1) pulmonary tuberculosis with a positive sputum or a history of positive sputum, (2) symptoms referable to the gastrointestinal tract (found in 96.5 per cent of the patients with intestinal tuberculosis) and (3) roentgenologic studies of the intestinal tract showing the characteristic ileocecal spastic filling defect.

Annals of Internal Medicine, Lancaster, Pa.

14:2167-2376 (June) 1941

Medical Activities of Augmented Military Forces. J. C. Magee, Washington, D. C.—p. 2173.
Problem of the Internist in the Navy. R. T. McIntire, Washington, D. C.—p. 2179.
Medicine in England Now. T. Parran, Washington, D. C.—p. 2184.
Nutrition in the United States: Program for Present Emergency and the Future. R. M. Wilder, Rochester, Minn.—p. 2189.
Concentration of Arsenic in Tissues and Excretion of Arsenic by Experimental Animals Following Intravenous Injection of Massive Doses of Mapharsen. H. J. Magnuson and B. O. Raulston, Los Angeles.—p. 2199.
Immediate Prognosis of Congestive Heart Failure. N. H. Boyer, C. E. Leach and P. D. White, Boston.—p. 2210.
Frequency and Character of Urinary Tract Infections in Unselected Group of Women. C. D. Marple, San Rafael, Calif.—p. 2220.
Intermittent Limping—Intermittent Claudication: Their Differential Diagnosis. I. Mufson, New York.—p. 2240.
Pneumonia As It May Affect Young Adults: Three Hundred Consecutive Cases Among Students at University of Wisconsin. C. E. Lyght, Northfield, Minn., and L. R. Cole, Madison, Wis.—p. 2246.
Hemorrhagic Pleural Effusion: Analysis of 120 Cases. K. Berliner, New York.—p. 2266.
Antacids: Their Effect by Titration and Within Human Stomach. H. C. Breuhaus and J. B. Eyerly, Chicago.—p. 2285.
New Type of Graduate Course in Internal Medicine. N. L. Crone and J. H. Means, Boston.—p. 2292.

Archives of Dermatology and Syphilology, Chicago

44:1-146 (July) 1941

Prevalence of Syphilis of Bones and Joints. J. Buchman and H. S. Lieberman, New York.—p. 1.
Dermatitis from Nail Lacquer. R. B. Palmer, Lincoln, Neb.—p. 13.
Blood Transfusion Syphilis: Report of Case. J. C. Bulfamonte, Shamokin, Pa.—p. 23.
Epitheliomatous Degeneration in Scar of Burn: Report of Case. F. J. Halford and H. C. Gotshalk, Honolulu, Territory of Hawaii.—p. 26.
Congenital Ichthyosiform Erythroderma. T. K. Lawless, Chicago.—p. 30.
End Results of Therapy of Epithelioma of Skin. S. Warren and C. R. Lulenski, Boston.—p. 37.
Elkonite, a Colloidal Clay Ointment Base. G. V. Kulchar, San Francisco.—p. 43.
Lichen Planus Follicularis Circumscriptus: Report of Two Cases. F. C. Combes and S. M. Bluefarb, New York.—p. 46.
Neurodermatitis Associated with Incompetent Greater Saphenous Veins: Report of Case. W. W. Heyerdale and E. E. Cannon, Rochester, Minn.—p. 52.
Oral Lesions in Pityriasis Rosea. S. S. Greenbaum, Philadelphia.—p. 55.
Dermatitis Herpetiformis in Infant: Report of Case. D. J. Wilson, Omaha.—p. 58.
Legal Aspects of Patch Tests. J. G. Downing, Boston.—p. 63.

Archives of Internal Medicine, Chicago

68:1-180 (July) 1941

*Thrombosis of Deep Veins of Leg: Its Clinical Significance as Exemplified in 351 Autopsies. W. C. Hunter, V. D. Sneeden, T. D. Robertson, Portland, Ore., and G. A. C. Snyder, Spokane, Wash.—p. 1.
Serum Lipids in Patients with Rheumatoid Arthritis and in Patients with Obstructive Jaundice: Comparative Study. W. D. Block, O. H. Buchanan and R. H. Freyberg, Ann Arbor, Mich.—p. 18.
Immediate Serum Reactions in Man: Classification and Analysis of Reactions to Intravenous Administration of Antipneumococcus Horse Serum in Cases of Pneumonia. D. D. Rutstein, Elizabeth A. Reed, A. D. Langmuir and E. S. Rogers, Albany, N. Y.—p. 25.
*Torula Infection of Lungs and Central Nervous System: Report of Six Cases with Three Autopsies. D. L. Reeves, E. M. Butt and R. W. Hammack, Los Angeles.—p. 57.
Fusospirochetosis: Recovery of Causative Organisms from Blood, with Report of Two Cases. R. H. Williams, Boston.—p. 80.
*Cause of So-Called Side Ache That Occurs in Normal Persons: Personal Observations. R. B. Capps, Chicago.—p. 94.
Vitamin A and Carotene Content of Human Liver in Normal and in Diseased Subjects: Analysis of 116 Human Livers. Elaine P. Ralli, E. Papper, K. Paley and E. Bauman, New York.—p. 102.
Hemorrhagic Diathesis: Analysis of 355 Autopsy Reports. L. Perlman and T. A. Fox, Chicago.—p. 112.
Treatment of Lobar Pneumonia with Rabbit Antipneumococcus Serum. E. H. Loughlin, S. H. Spitz and R. H. Bennett, Brooklyn.—p. 121.
Metabolism and Diabetes. E. H. Rynearson and Alice G. Hildebrand, Rochester, Minn.—p. 134.

Thrombosis of Deep Veins of Leg.—In order to ascertain whether venous thrombosis was more frequent in one type of hospital than in another, Hunter and his co-workers present the data of a cooperative effort from a charity hospital, a state psychopathic institution and two private hospitals, at which institutions a total of 209 pairs of soleus and gastrocnemius muscles were subjected to microscopic study. Thrombi of varying age proved to be present in 52.7 per cent of the 351 unselected middle aged and old patients who before necropsy were forced to bed for varying periods of time without the aid of exercise or gravity for maintaining an efficient venous circulation. Thrombi in the veins accompanying the larger arteries were more frequent than in other veins and were present in the soleus muscle more often than in the gastrocnemius. Fatal pulmonary embolism was responsible for 3.13 per cent of all the deaths; in 45.4 per cent the most probable cause was embolism from a thrombosed leg vein. Although fulminating emboli often arise from the femoral vessels, thrombosis here represents an extension from older clots in the legs and feet. There was little difference in the incidence of thrombosis between medical and surgical patients or between males and females. The respective percentages of thrombosis for the four hospitals were 59, 49, 41.8 and 40, and for the males and females it was 52.2 and 53.5. Phlebitis, either as a cause or as a complication of thrombosis, played a minor part. Phlebothrombosis of the deep veins of the leg because it is clinically silent is likely to be forgotten until embolic phenomena occur. Planned and supervised voluntary exercise should greatly reduce the incidence of thrombosis and its frequent sequela, pulmonary embolism.

Torula Infection of Lungs and Central Nervous System.—Reeves and his associates point out that the protein clinical nature of cryptococcosis or torulosis has often caused it to be confused with tuberculous meningitis, epidemic encephalitis, syphilis and cerebral tumor or abscess. Frequently the cause of the disease has been revealed only at necropsy. They report 6 personally observed cases which indicate that the diagnosis may continue to be difficult and confusing. The diagnosis can be ascertained only by the growth of the fungus from the spinal fluid and its differentiation from other infectious granulomas: blastomycosis and coccidioidal granuloma. The course of the infection in 1 of their patients was strikingly different from that in the others who died within a few months. At the time of writing, the duration of illness in this patient has been more than two and a half years. Improvement has taken place, and only time will show whether this is another instance of a remission or the beginning of recovery. This patient presented the first opportunity for the use of sulfapyridine, but improvement was evident prior to its trial. Sulfapyridine was used three days prior to the death of 1 of the other patients without any beneficial effect. Numerous cultures and examinations of 2 patients were made before the organism was discovered. With the exception of the patient who is still living, in whom the condition was first thought due to syphilis because of the positive

Wassermann reactions, the presumptive diagnosis in the other patients was tuberculous meningitis. Although the proper diagnosis was established in all patients prior to their death or necropsy, it was made possible only by laboratory data. Because of the pathologic condition of the organs of the sixth patient the authors believe that it was another example of generalized torula infection.

Cause of Side Ache.—Capps observed 114 attacks of side ache or "stitch in the side" in 55 persons. The important features were found to be a constant relation to exertion, a tendency for the ache to occur after eating, a variable location, usually in either the right or the left upper quadrant of the abdomen, relief by bending over or from local pressure and a tendency to aggravation in cold weather. Previously proposed theories regarding the mechanism of pain are untenable. Anoxemia of the diaphragmatic muscle for the side ache is the explanation offered. Why the pain is generally unilateral is not clear. Perhaps the person stops exercising before the other side begins to hurt. Improved breathing might well put less of a load on the diaphragm.

Archives of Pathology, Chicago

32:1-168 (July) 1941

Primary Systemic Amyloidosis: Report of Two Cases in Negroes, with Special Reference to Certain Histologic Criteria for Diagnosis. B. Pearson, M. M. Rice and K. L. Dickens, New Orleans.—p. 1.

Visualization of Vitamin A in Rat Organs by Fluorescence Microscopy. H. Popper and R. Greenberg, Chicago.—p. 11.

So-Called Intercapillary Glomerulosclerosis—Lesion Associated with Diabetes Mellitus: Morphogenesis and Significance. A. C. Allen, New York.—p. 33.

Congenital Anomaly of Cerebellar Vermis. A. L. Sahs, Iowa City.—p. 52.

Anatomic Findings in Heart in Combined Hypertension and Syphilis. C. L. Royster, Raleigh, N. C.; J. R. Lisa and J. Carroll, New York.—p. 64.

Effect of Prolonged Administration of Large Quantities of Sodium Bicarbonate on Kidney of Dog. J. B. Kirsner, Chicago.—p. 76.

Response of Cartilage and Bone of Growing Mice to Testosterone Propionate. M. Silberberg and Ruth Silberberg, St. Louis.—p. 85.

Legal Aspects of Autopsies and Pathologic Specimens in Missouri. W. E. B. Hall, Denver.—p. 96.

Constitution and Related Factors in Resistance to Tuberculosis. E. R. Long, Philadelphia.—p. 122.

Archives of Surgery, Chicago

43:1-168 (July) 1941

*Physiologic Effects of High Concentrations of Oxygen in Experimental Secondary Shock. H. A. Davis, New Orleans.—p. 1.

*Resection of Liver for Hepatoma. R. H. Wallace, Boston.—p. 14.

Skin Transplantation by Injection: Its Effect on Healing of Granulating Wounds. C. G. Barber, Cleveland.—p. 21.

Actual Growth of Young Cartilage Transplants in Rabbits: Experimental Studies. S. M. Dupertuis, Pittsburgh.—p. 32.

Capillary Permeability and Inflammation in Rabbits Given Heparin. R. H. Rigdon and H. Wilson, Memphis, Tenn.—p. 64.

Effect of Hepatic Damage on Gastric Acidity. M. H. Streicher, Chicago.—p. 74.

Basal Cell Epithelioma of Anus: Report of Two Cases. K. B. Lawrence, Boston.—p. 88.

Functional Effect of Neosynephrin on Anesthetized Dog: Observations of Blood Pressure, Pulse, Respiration and Flow of Urine and Bile. P. H. Lorhan and J. G. Schnedorf, Kansas City, Kan.—p. 94.

Basal Cell Carcinoma of Vulva: Report of Four Cases. J. M. Wilson, Durham, N. C.—p. 101.

Spinothalamic Tractotomy in Medulla Oblongata: Operation for Relief of Intractable Neuralgias of Occiput, Neck and Shoulder. J. C. White, Boston.—p. 113.

Review of Urologic Surgery. A. J. Scholl, Los Angeles; F. Hinman, San Francisco; A. von Lichtenberg, Mexico City, Mexico; A. B. Hepler, Seattle; R. Gutierrez, New York; G. J. Thompson, J. T. Priestley, Rochester, Minn.; E. Wilbolz, Berne, Switzerland, and V. J. O'Conor, Chicago.—p. 128.

Oxygen in Experimental Secondary Shock. — Davis reports a series of experiments undertaken to investigate the physiologic action of high concentrations of oxygen on dogs in which secondary shock had been induced, employing normal dogs as controls. The author found that the administration of oxygen was most efficacious when the reduction of blood volume had ceased and least efficacious in shock associated with a continued decrease in the blood volume. The best results were obtained in dogs with mild hemorrhagic shock. Good results were also obtained in dogs with severe hemorrhagic shock, but oxygen was relatively of little value when shock was associated with hemoconcentration, owing probably to the continued reduction in the blood volume. The clinical considerations deduced by the author from his experiments are that (1) the administration of oxygen should be regarded merely as a subsidiary form of treating shock, (2) best results are obtained before considerable diminution has occurred, regardless of whether the shock is associated with hemodilution or hemoconcentration and (3) oxygen is useless in severe shock if the blood volume continues to decrease. If the blood volume is low but no further decrease occurs, oxygen may tend to stabilize the low blood pressure and prevent its further fall until other forms of therapy are available.

Partial Hepatectomy for Hepatoma.—Wallace reports a rare case of a 23 year old Italian mother of three children with a large solitary liver cell hepatoma, on whom partial resection of the liver was performed. She had had a lump in the right side for four years and an increasing dragging sensation. The lump had been variously diagnosed as a floating kidney, cyst, renal tumor and an ovarian cyst. On resection, the tumor measured 15 by 13 by 5 cm. Microscopically the tissue was seen to be composed of cords of cells recognizable as hepatic cells, arranged in lobular formation about the central veins. The portal spaces contained an artery and a vein, but no bile ducts could be made out. Five years after the operation she was well and presented no signs of weakness, discomfort or indigestion. Hepatoma in an otherwise normal liver may originate in the parenchymatous liver cells or in the intrahepatic bile ducts. The tumor may grow slowly for years before it spreads through the hepatic vessels or metastasizes widely. A primary hepatoma may be encapsulated and appear benign. However, hepatomas originating either in the liver cells or in the bile ducts are potentially malignant and should be removed.

Bulletin of Johns Hopkins Hospital, Baltimore

68:425-552 (June) 1941

Blood Flow to Forearm and Calf: I. Vasomotor Reactions; Role of Sympathetic Nervous System. R. W. Wilkins and L. W. Eichna, Baltimore.—p. 425.

Id.: II. Reactive Hyperemia; Factors Influencing Blood Flow During Vasodilatation Following Ischemia. L. W. Eichna and R. W. Wilkins, Baltimore.—p. 450.

Id.: III. Effect of Changes in Arterial Pressure on Blood in Normal and Hypertensive Subjects. R. W. Wilkins and L. W. Eichna, Baltimore.—p. 477.

Id.: Thyroid Activity; Observations on Relation of Blood Flow to Basal Metabolic Rate. L. W. Eichna and R. W. Wilkins, Baltimore.—p. 512.

Rapid Method for Determination of Diodrast-Iodine in Blood and Urine. L. K. Alpert, Baltimore.—p. 522.

*Changes Induced in Patients with Hyperthyroidism by Oral Administration of Desiccated Thyroid. W. F. Rienhoff Jr., Baltimore.—p. 543.

Desiccated Thyroid and Hyperthyroidism. — Rienhoff reports the preoperative exclusive treatment with desiccated thyroid in 9 cases presenting diffuse goiter with severe hyperthyroidism. The dosage consisted of 4 grains (0.26 Gm.) given daily by mouth in 1 grain (0.06 Gm.) doses. In all cases but one the administration of the drug did not extend beyond three weeks, when surgical intervention took place. One patient was treated with the drug for six months after a left lobectomy and then subjected to a right lobectomy. All patients recovered from the operation and remained well. No residual clinical signs or symptoms of hyperthyroidism were noted, and the basal metabolic rates were within normal limits. In 1 case, thyroid medication brought about the structural atrophy of the gland.

Bulletin New York Academy of Medicine, New York

17:487-564 (July) 1941

Epidemic Encephalitis. R. S. Muckenfuss, New York.—p. 487.

Progress in Preoperative and Postoperative Care of Patients with Lesions of Biliary Tract. I. S. Ravdin, Philadelphia.—p. 500.

Chemical and Physiologic Properties, and Clinical Uses of Corpus Luteum Hormone, Progesterone. W. M. Allen, St. Louis.—p. 508.

Chemical, Physiologic and Clinical Aspects of Androgens. J. E. Howard, Baltimore.—p. 519.

Some Aspects of Common Contagious Diseases. P. M. Stimson, New York.—p. 532.

Marriage of Medicine and Civil Government. H. Emerson, New York.—p. 548.

Canadian Public Health Journal, Toronto

32:287-338 (June) 1941

Progress in Tuberculosis Control in Canada. G. J. Wherrett, Ottawa, Ont.—p. 287.

Parasitic Infestations of Fish. J. D. Detwiler, London, Ont.—p. 293.

St. James-St. Vital Health Unit, Manitoba. I. M. Cleghorn, Winnipeg, Man.—p. 301.

Phenothiazine in Treatment of Enterobiasis. E. Kuitunen-Ekbaum, Toronto.—p. 308.

Single Colony Isolation of Anaerobes. L. Greenberg, Ottawa, Ont.—p. 314.

Cancer Research, Philadelphia

1:345-438 (May) 1941. **Partial Index**

Effect of Estrogen on Incidence of Mammary and Pituitary Tumors in Hybrid Mice. W. U. Gardner, New Haven, Conn.—p. 345.

Tumors Produced by Estradiol Benzoate in Guinea Pig. L. M. Woodruff, New Haven, Conn.—p. 367.

Relation of Diet to Benign Neoplasia (Ulceropapillomas) of Rat's Stomach. A. Brunschwig and R. A. Rasmussen, Chicago.—p. 371.

Experimental Production of Fibrosarcomas of Bone. C. C. Franseen, J. C. Aub and Carol L. Simpson, Boston.—p. 393.

Cutaneous Neoplastic Responses Elicited by Ultraviolet Rays in Hairless Rats and in Their Haired Litter Mates. W. C. Hueper, New York.—p. 402.

Reticulum Cell Sarcoma of Rat Transferred Through Twelve Successive Passages in Animals of Related Stock. Florence S. Jenney, Pittsburgh.—p. 407.

Cancer Mortality in New York City; 1901 to 1938. T. J. Duffield and Marie Di Mario, New York.—p. 413.

Connecticut State Medical Journal, Hartford

5:479-554 (July) 1941

Industrial Medicine. A. B. Landry, Hartford.—p. 481.

Early Medical Practice in Hartford County. S. B. Weld, Hartford.—p. 484.

Diet and Bright's Disease. S. Weiss, Boston.—p. 496.

Gastrointestinal Symptoms in Eye, Ear, Nose and Throat Disorders. S. H. Baron, New London.—p. 502.

Diagnosis of Cancer of Stomach and Colon. A. W. Oughterson, New Haven.—p. 506.

Journal of Bone and Joint Surgery, Boston

23:497-752 (July) 1941. **Partial Index**

Congenital Pseudarthrosis: Treatment by Dual Bone Grafts. H. B. Boyd, Memphis, Tenn.—p. 497.

*Use of Sulfathiazole in Treatment of Subacute and Chronic Osteomyelitis. F. D. Dickson, R. L. Diveley and R. Kiene, Kansas City, Mo.—p. 516.

Adduction Traction in Trochanteric Fractures. T. A. Fox and G. L. Apfelbach, Chicago.—p. 552.

*Use of Neoarsphenamine in Treatment of Acute Staphylococcus Aureus Septicemia and Osteomyelitis. J. F. LeCocq and E. Lecocq, Seattle.—p. 596.

Timing of Fracture Healing Process: Its Influence on Choice and Application of Treatment Methods. C. R. Murray, New York.—p. 598.

Physiologic Scoliosis. A. Farkas, Iowa City.—p. 607.

Analytic Study of Bone and Joint Lesions in Relation to Chronic Pulmonary Tuberculosis. Ester Rosencranz, Angela Piscitelli and F. C. Bost, San Francisco.—p. 628.

Spontaneous Fracture of Femoral Neck Following Roentgen Ray Therapy over Pelvis. D. Hight, Worcester, Mass.—p. 676.

Tuberculosis of Shoulder: Report of Four Cases Treated by Operative Fusion. J. A. Murphy, Cleveland, and C. Wood, Louisville, Ky.—p. 687.

Testicular Teratoma Metastasizing to Spine. R. K. Vosburgh and J. E. Alderman, Syracuse, N. Y.—p. 701.

Intercondylar T Fracture of Elbow. A. H. Trynin, Brooklyn.—p. 709.

Sulfathiazole for Subacute and Chronic Osteomyelitis.—Dickson and his associates report the favorable use of sulfathiazole in 22 cases of subacute and chronic osteomyelitis. (Hematogenous osteomyelitic foci numbered 18; in 4 cases osteomyelitis followed a compound fracture.) The oral use was accompanied with thorough débridement of the foci and the introduction of sulfathiazole powder into the wound. Eighty-two per cent of the lesions healed by primary intention. The average healing period lasted twenty-three days. The drug was administered by mouth on an average of five and nine-tenths days before surgery and fifteen days after surgery. The average daily oral dose was 0.11 Gm. per kilogram or 5 Gm. per hundred pounds of body weight. Though based on a comparatively small series of cases, the satisfactory results, both as to the type of healing and as to the healing period, commend themselves for further experimentation.

Neoarsphenamine for Staphylococcus Septicemia and Osteomyelitis.—The Lecocqs report the use of arsenic compounds, during the course of thirteen years, in 66 cases of acute fulminating Staphylococcus aureus septicemia and osteomyelitis. There were 44 males and 22 females, with an average age of 8½ years. The site of infection was most often the tibia and femur. Blood cultures were made in 53 of the 66 cases: the results here reported apply to this group. Thirty of them gave a positive reaction and 13 died. There were 40 recoveries (75.5 per cent).

Journal of Immunology, Baltimore

41:127-258 (June) 1941

Studies in Contact-Dermatitis: IV. Spontaneous Flare-Up of Negative Test Sites in Experimental Sensitization in Man. M. Grolnick, Brooklyn.—p. 127.

Study of Antigenicity of Proteoses. A. Stull and S. F. Hampton, New York.—p. 143.

Immunologic Properties of Antigenic Material Isolated from Eberthella Typhosa. H. R. Morgan, Boston.—p. 161.

Subdivisions of Group A and Group AB: II. Isoimmunization of A_2 Individuals Against A_1 Blood; with Special Reference to Role of Subgroups in Transfusion Reactions. A. S. Wiener, Brooklyn.—p. 181.

Antigenic Differentiation Among Strains of Paramecium Aurelia. A. W. Bernheimer and J. A. Harrison, Philadelphia.—p. 201.

Electrophoretic and Ultracentrifugal Analyses of Antipneumococcic Horse Serums. J. van der Scheer, J. B. Lagsdin and R. W. G. Wyckoff, New York.—p. 209.

Effects of Enzymes on Ragweed Pollen and Studies on Isoelectric Point of Low Ragweed Antigen. G. E. Rockwell, Cincinnati.—p. 225.

Detoxification of Staphylococcic Toxin by Adsorption on Organic Liquids. J. M. Johlin and R. H. Rigdon, Nashville, Tenn.—p. 233.

Studies on Measles: II. Experimental Disease in Man and Monkey. M. F. Shaffer; G. Rake, New Brunswick, N. J.; J. Stokes Jr., and G. C. O'Neil, Philadelphia.—p. 241.

Journal Industrial Hygiene & Toxicology, Baltimore

23:217-276 (June) 1941

Recovery Following Exposure to Benzene (Benzol). L. J. Goldwater and Margaret P. Tewksbury, New York.—p. 217.

Effects of Inhalation of Benzene Vapors on Red Blood Cells of Rabbits. E. J. Robinson, Stamford, Conn., and D. R. Climenko, Rensselaer, N. Y.—p. 232.

Acute and Chronic Intoxications with Sodium Pentachlorophenate in Rabbits. T. H. McGavack, L. J. Boyd, F. V. Piccione and R. Terranova, New York.—p. 239.

Evaluation of Lead Hazard: Urinary versus Atmospheric Lead. H. B. Elkins, J. F. Ege Jr. and B. P. Ruotolo, Boston.—p. 256.

Single Dose Toxicity of Some Glycols and Derivatives. H. F. Smyth Jr., Jane Seaton and Louise Fischer, Pittsburgh.—p. 259.

Inhalation of Filtered Carbon Arc Fumes and Oxides of Nitrogen. J. P. Tollman, E. L. MacQuiddy and S. Schonberger, Omaha.—p. 269.

Journal-Lancet, Minneapolis

61:253-302 (July) 1941

"Last Stand of the Family Doctor." B. M. Hart, Onida, S. D.—p. 271.

*Protruded Intervertebral Disk: Some Practical Considerations. H. F. Buchstein, Minneapolis.—p. 278.

Fixation of Uterus to Abdominal Wall with Fascial Sutures. H. M. N. Wynne, Minneapolis.—p. 281.

Certain Phases of Nonoperative Treatment of Fractures. R. K. Ghormley, Rochester, Minn.—p. 282.

Proposed Simple Method of Determining Clinical Hypersensitiveness in Allergic Patients: Preliminary Report. F. W. Wittich and S. M. Boyle, Minneapolis.—p. 285.

Relation of the Medical Profession to Selective Service. R. H. Eanes, Washington, D. C.—p. 287.

American Student Health Association and Public Health Program. J. Sundwall, Ann Arbor, Mich.—p. 292.

Protruded Intervertebral Disk.—According to Buchstein, protruded intervertebral disks in the lower lumbar region are now recognized as a leading cause of chronic, intractable sciatic pain. Increasing familiarity with the clinical syndrome produced by these lesions now permits diagnosis in most cases either on clinical grounds alone or with the aid of air myelography. Mild symptoms are frequently relieved by conservative measures, such as rest in bed and immobilization of the lower back. In the presence of severe and incapacitating symptoms or if the patient is unable to resume his occupation without a recurrence of symptoms, operative removal of the protruded portion of the disk and the overlying ligamentum flavum is indicated. This offers quick, complete and permanent relief in a high percentage of cases.

Journal of Pharm. & Exper. Therap., Baltimore

72:227-310 (July) 1941

Toxicity and Actions of Trimethylene Glycol. W. Van Winkle Jr., San Francisco.—p. 227.
Anesthesia: IV. Anesthetic Action of Cyclopropylethylether. J. C. Krantz Jr., C. J. Carr, S. E. Forman, W. E. Evans Jr. and H. Wollenweber, Baltimore.—p. 233.
Further Studies on Fate of Selenium in Organism. B. B. Westfall and M. I. Smith, Washington, D. C.—p. 245.
Absorption and Elimination of Phenolphthalein in Normal and Pathologic States, with Particular Reference to Liver and Kidney Diseases. B. Fantus, F. Steigmann and J. M. Dyniewicz, Chicago.—p. 252.
Comparative Physiologic Actions of Phenyl-, Thienyl- and Fury-Lisopropylamines. G. A. Alles and G. A. Feigen.—p. 265.
Method for Determination of 5,5 Diphenylhydantoin in Biologic Material. F. L. Kozelka and C. H. Hine, Madison, Wis.—p. 276.
Distribution and Rate of Metabolism of 5,5 Diphenylhydantoin. C. H. Hine and F. L. Kozelka, Madison, Wis.—p. 280.
Distribution, Excretion and Rate and Site of Detoxification of Metrazol. H. J. Tatum and F. L. Kozelka, Madison, Wis.—p. 284.
Mode of Action of Neoprontosil in Streptococcic Infections in Mice. J. T. Litchfield Jr., H. J. White and E. K. Marshall Jr., Baltimore. —p. 291.
Effect of Sulfanilamide and Some of Its Derivatives on Reaction of Mice to Anesthetics. T. C. Butler, H. L. Dickison, W. M. Govier, C. M. Greer and P. D. Lamson, Nashville, Tenn.—p. 298.
Further Observations on Action of Drugs on Caliber of Coronary Vessels: Papaverine Hydrochloride, Digitalis Derivatives, Aminophyllin, Caffeine, Glucose, Calcium Gluconate and Metrazol. E. Lindner and L. N. Katz, Chicago.—p. 306.

Journal of Thoracic Surgery, St. Louis

10:485-602 (June) 1941

*Tuberculous Cavitation and Transpleural Decompression. H. Brunn, S. Shipman, A. Goldman and L. Ackerman, San Francisco.—p. 485.
*Choice of Procedure in Treatment of Tuberculous Cavities: Considerations Regarding Intracavitary Pressure Based on Clinical Observations and Experiments on Cadavers. L. Eloesser, San Francisco.—p. 501.
*Coronary Sclerosis and Angina Pectoris: Report of Thirty Patients Treated by the Beck Operation. H. Feil and C. S. Beck, Cleveland. —p. 529.
Cineroentgenographic Studies of Pulmonary Circulation, Chambers of Heart and Great Blood Vessels in Health and Disease. W. H. Stewart, C. W. Breimer and H. C. Maier, New York.—p. 541.
Mechanism for Artificial Pulmonary Ventilation in Operating Room. F. R. Mautz, Cleveland.—p. 544.
Complications of Extrapleural Pneumothorax. W. F. Hoyt and J. C. Tate, Springfield, Mass.—p. 551.
Primary Multiple Alveolar Cell Tumor of Human Lung: Report of Case. K. Neubuerger, Denver.—p. 557.
Surgical Treatment of Recurrent Idiopathic Spontaneous Pneumothorax. M. D. Tyson and W. B. Crandall, Hanover, N. H.—p. 566.
Comparative Action of Sulfanilamide, Sulfapyridine, Sulfathiazole, and Acetylsalicylic Acid (Aspirin) on Growth of Tubercle Bacillus in Vitro. J. G. Whitehead, Baltimore.—p. 572.
Historical Consideration of Diaphragm. H. C. Ballon, Montreal, Canada. —p. 576.
Hemothorax: Its Relation to Primary Carcinoma of Lung. H. L. Cabitt, Boston.—p. 590.

Tuberculous Cavitation and Transpleural Decompression.—In necropsies of 100 cases of tuberculosis Brunn and his colleagues focused special attention on bronchi opening into cavities. Every cavity examined had from one to six open bronchi. Lesions in small bronchi suggesting an allergic reaction are found rarely. By continuous kymographic recordings of intracavitary pulmonary pressures in patients undergoing transpleural decompressive therapy they were able to show that changes in the intracavitary pressures are only infrequently related to the actual breathing of the cavity. In tension cavities this phenomenon seems to occur rarely during the daily activities of such a patient. The flow of air from the bronchus into the cavity does not occur bit by bit with each inspiration or expiration but at infrequent periods over the course of a few respirations. This leakage of air can be induced artificially by negative pressure. The bronchus-cavity relationship at most times is valvular, with the valve prohibiting the passage of air from cavity to bronchus. Kymographic tracings of intracavitary pressures show that: 1. In tension cavities respiratory fluctuations of pressure are caused by the pressures transmitted through the walls of the cavity from the surrounding lung. 2. But little actual flow of air in and out of tension cavities takes place through the bronchus. 3. In such cavities the valve formation is usually 100 per cent efficient in the cavity-to-bronchus direction. The pressures may be positive in both phases of respiration. 4. The valvular efficiency of a cavity-bronchus relationship changes during transpleural decompression therapy. 5. Nontension cavity pressures may simulate normal bronchial pressures. 6. Nontension cavities have no demonstrable valve mechanism. 7. Of 20 transpleural decompressions on nontension cavities in 18 patients (2 bilateral cases) the treatment in 7 was not completed because of lack of cooperation, aggravation of the existing tuberculosis or tension pneumothorax. There were 3 deaths: 2 due to tension pneumothorax and empyema and 1 to a tuberculous pericarditis unrelated to the treatment. Two cavities are apparently permanently closed. The secretions from the cavities of 5 patients are negative for tubercle bacilli. The cavity of 1 patient is still open, the catheter has been removed and the sputum and secretions have been negative for six months. The cavities of 2 patients who had thoracoplasties after transpleural decompression was discontinued are still open. Of 4 patients who had thoracoplasties prior to transpleural decompression 1 is apparently cured, transpleural decompression is being continued in 1, the cavity of 1 is smaller but the secretions are still positive and the sputum of 1 is positive. According to the bronchus-cavity concept, the production and maintenance of certain cavities is dependent on the presence of bronchi-cavity valves which allow the passage of air in one direction only, i. e., toward the cavity.

Treatment of Tuberculous Cavities.—According to Eloesser, the three methods collapse, compression and aspiration, employed in the treatment of tuberculous pulmonary cavities, postulate such fundamentally different ideas of cavity formation and healing that he inquires why each has at times succeeded and at others failed to close certain cavities. He studied 5 cadavers with tuberculous cavities, 1 with severe bronchial stenosis and 2 with normal lungs. His observations indicate that even irregular, ragged walled cavities situated in a densely infiltrated, largely airless area of lung contain air which is under more than atmospheric pressure a considerable part of the time. This is true even under conditions of normal respiration. The observations were made on cavities with shaggy, necrotic walls. The bronchial communications were open, but not freely so; secretion, pus and shaggy bits of necrotic material were probably sufficient to block them partially part of the time, so that inflation by entrapped air may play a part in maintaining or producing these cavities. The lungs of the 2 normal cadavers were needled as controls. After a short period without manometric variations the water began to swing back and forth freely. This was found to be due to the formation of a small air space, a traumatic cavity. Air remained entrapped even in this little cavity, and the manometer, once it began to swing, failed to reach the base line but continually registered a few centimeters of positive pressure. The author has needled the cavities of more than 60 patients, in some repeatedly. Empyema, serious infection of the chest wall, hemorrhage or collapse has not been observed. His conclusions are as follows: 1. The pressure (which is higher than that of the atmosphere) in many tuberculous cavities varies accordingly as their communicating bronchi are temporarily open or blocked. 2. This pressure tends to keep cavities distended. 3. A respiratory pressure variation of intracavitary air does not prove that the communicating bronchus is open. Proof of a blocked communication is afforded if intracavitary pressure remains elevated while the patient holds his glottis open and stops breathing. 4. Provided no free pleural space exists, needling for the purpose of determining the type of treatment is legitimate and useful. 5. Thoracoplasty is not likely to be successful in collapsing a cavity with a high intracavitary pressure, but it may be closed temporarily by a single aspiration or by continuous suction drainage if it contains considerable pus. 6. In order to obliterate the cavity permanently, secondary thoracoplasty or drainage with a skin flap should follow suction. 7. Cavities may persist in artificial pneumothorax because of fixation by adhesions or intracavitary pressure. 8. Cavities held distended by adhesions should change their shape, and those held open by increased intracavitary pressure should not change with inspiration, expiration and changes in position. 9. Pneumolysis is not likely to close cavities which do not change their shape with postural changes or on inspiration and expiration.

Coronary Sclerosis and Angina Pectoris.—Feil and Beck present the follow-up data of 30 patients who had vascularized grafts placed on the heart in the hope of establishing a

collateral blood supply. The diagnosis of coronary sclerosis was definitely established for all the patients. On the usual medical regimen their tolerance for physical and emotional strain was greatly reduced. There were no immediate operative deaths. The total mortality was 33⅓ per cent; the mortality among the first 15 was 47 per cent. Three deaths were caused by arterial thrombosis. There were 3 sudden deaths, all of patients with severe generalized coronary arteriosclerosis. Bronchopneumonia was the cause of death of 3 patients and mediastinitis of 1 death. The postoperative fatalities occurred within one to nine days. There were 4 remote postoperative deaths: 1 two and a half years after operation of inanition and a clinical picture resembling Simmonds' disease, 1 two years and three months later of cerebral hemorrhage, 1 one year and three months following operation of myocardial infarction; 1 patient with early cardiac failure due to hypertensive and coronary artery disease survived for six months and died of congestive failure. Study of possible cardiac compression as the result of the postoperative scar was carried out in 10 patients, and in only 1 was the venous pressure elevated to 15 cm. of physiologic solution of sodium chloride. In the other patients the venous pressure at the elbow measured from 3 to 11 cm. Study of roentgenograms revealed no diminution in the pulsation of the heart. Signs of chronic postoperative cardiac compression were not found in any of the patients. Thirteen (65 per cent) of the surviving patients were completely or almost entirely relieved, resuming their previous occupations. This high percentage of improvement is encouraging, as preoperatively all the patients were seriously disabled.

Kentucky Medical Journal, Bowling Green

39:231-264 (July) 1941

Some Problems of Army Surgery. C. D. Holmes, Fort Knox.—p. 235.
Prevention and Treatment of Acute Respiratory Diseases at Fort Knox, Winter 1940-1941. A. J. Bayley, Fort Knox.—p. 238.
Some Medical Phases of Selective Service. W. N. Lipscomb, Louisville.—p. 240.
Aviation Medicine. G. W. Neece, Fairfield, Ohio.—p. 245.
Some Recent Thoughts About Diabetes. E. S. Wilson, Pineville.—p. 248.
Nonoperative Gynecologic Conditions of Interest to General Practitioner. E. P. Solomon, Louisville.—p. 250.
Perforated Peptic Ulcer. R. A. Griswold, Louisville.—p. 252.
Meningitis, Pneumococcus Type III, with Recovery. J. Stites, A. E. Bell and F. K. Jelsma, Louisville.—p. 258.

Laryngoscope, St. Louis

51:479-606 (June) 1941

Physiology of Larynx: Résumé and Discussion of Literature for 1940. J. L. Pressman, Los Angeles.—p. 479.
Progressive Deafness, Otosclerosis and Closely Related Subjects: Abstract of Available Literature Published During Year 1940. J. A. Babbitt and L. E. Silcox, Philadelphia.—p. 516.
Plastic by Tracheostomy. E. I. Matis, Kaunas, Lithuania.—p. 565.
Experimental Administration of Sulfapyridine to Guinea Pigs Infected with Human Tubercle Bacilli. F. R. Spencer, R. W. Whitehead and G. J. Duffner, Denver.—p. 569.
Indications for Surgery in Meningitis. E. King, Cincinnati.—p. 572.
Pharyngomaxillary Fossa Infection: Case Report. R. J. Gaffney, New York.—p. 575.
Osteogenic Fibrosarcoma of Temporal Bone. H. W. Corya, New York.—p. 580.
Meningitis and Temporal Lobe Abscess Secondary to Suppurated Petrositis: Clinical Course with Sulfanilamide. E. R. Snyder, New York.—p. 586.

Medical Annals of District of Columbia, Washington

10:253-284 (July) 1941

*Combined Alkaloidal Treatment of Parkinsonism. A. Simon and J. L. Morrow, Washington.—p. 253.
Rupture of Intestines from Nonpenetrating Injuries of Abdomen. J. R. Veal and E. B. Barnes, Washington.—p. 259.
Local Anesthetic Reactions. H. B. Shumacker Jr., Baltimore.—p. 264.
Typhus Fever in Washington: Report of Case. J. L. Thompson Jr., Washington.—p. 267.
Sudeck's Acute Bone Atrophy: Report of Case. A. J. Mourot, Washington.—p. 269.

Combined Alkaloid Treatment of Parkinsonism.—Simon and Morrow report the use of a synthetic preparation containing 0.5 mg. of alkaloids (hyoscyamine 0.45 mg., atropine 0.037 mg. and scopolamine 0.012 mg.) in 32 cases of parkinsonism for a period varying from two days to five and one-half months. Twenty-five patients presented encephalitic parkinsonism and 7 had other extrapyramidal disorders. In the postencephalitic group 14 were unimproved, 4 slightly improved and 7 moderately improved. In the other group only 1 was slightly improved. The symptoms ameliorated by the treatment were rigidity, gait difficulties, speech disturbances, salivation and tremor. Subjective improvement was seen in the majority of cases. Abnormal mental trends remained unaffected. The authors discuss the details of this alkaloid therapy and the possible complications and toxic manifestations.

Minnesota Medicine, St. Paul

24:517-612 (July) 1941

State Association. B. J. Branton, Willmar.—p. 529.
Medical Testimony. R. A. Stone, St. Paul.—p. 532.
Relationship of Voluntary Hospital Service Plans to Medical Practice. P. D. Ward, St. Paul.—p. 537.
*Meningioma of Spinal Cord. H. F. Buchstein, Minneapolis.—p. 539.
Demonstrable Genitourinary Disease in Presence of Normal Urinary Findings. W. Elliott, Virginia.—p. 546.
Sulfonamide Treatment of Gonococcic Urethritis. O. S. Culp, St. Paul.—p. 553.
Intestinal Obstruction Due to Food. H. Mattson and E. A. Larson, Minneapolis.—p. 559.

Meningioma of Spinal Cord.—Buchstein reports 4 cases of spinal cord meningioma and describes the clinical and surgical aspects of these tumors. Meningiomas constitute one fourth of all neoplastic spinal cord tumors. They are solitary, benign growths, originating in the spinal meninges, which compress but do not invade the spinal cord. Their symptoms are those of spinal cord tumors in general, consisting of varying combinations of nerve root pain and signs of spinal cord compression. Most meningiomas of the spinal cord may be completely removed surgically with a gratifying restoration of function. The risk attending such operations has been reduced by refinements of technic which necessitate accurate preoperative localization of the tumor. The subarachnoid injection of iodized poppyseed oil is the most frequently employed localizing method and is the only effective method in many cases. The presence of tumors can be determined by direct roentgenography, by multiple spinal punctures and by air myelography. The author states that a tumor of the spinal cord may be suspected of being a meningioma when it occurs in the thoracic region of the spine in an adult female and has produced symptoms for from one to two years.

Missouri State Medical Assn. Journal, St. Louis

38:221-266 (July) 1941

Cancer of Gastrointestinal Tract: Its Early Manifestations. B. R. Kirklin, Rochester, Minn.—p. 221.
Blind Pensioners in Missouri. J. F. Hardesty, St. Louis.—p. 223.
Simple Tests for Rapid Differentiation of Barbiturates and Other Sedative Drugs. H. L. Motley, Columbia.—p. 228.
Inguinal Hernia: Repair with Transplantation of Cord Through Internal Oblique Muscle. C. B. Schutz, Kansas City.—p. 231.
Menu for Dietary Management of Allergic Disease. L. P. Gay, St. Louis.—p. 233.
Leiomyoma of Stomach: Case Report. P. H. Halperin, Kansas City.—p. 235.
Selection of Hypertensive Patients for Treatment with Thiocyanate. W. L. Ritter, Indianapolis.—p. 238.

New England Journal of Medicine, Boston

224:1081-1120 (June 26) 1941

*Experience with Electric Shock Therapy in Mental Disease. A. Myerson, with assistance of L. Feldman and I. Green, Boston.—p. 1081.
*Tularemia in Imported Rabbits in Massachusetts. D. L. Belding and Beulah Merrill, Boston.—p. 1085.
Healed State of Periarteritis Nodosa: Report of Case. E. R. Blaisdell and J. E. Porter, Portland, Maine.—p. 1087.
Orthopedics in New Hampshire. E. A. Jones, Manchester, N. H.—p. 1090.
Diagnostic Roentgenology: Flat Film of Abdomen, Myelography: Air versus Iodized Oil; Fibrocystic Disease of Bone. R. Schatzki, Boston.—p. 1101.

Electric Shock Therapy in Mental Disease.—Myerson employed electric shock therapy in the treatment of 36 patients with affective psychotic disturbances. The diagnosis was depression or depressed obsessive state in 24, was schizophrenia in 9 and chronic neurosis in 3. The average number of shocks, lasting from thirty to forty-five seconds, was between five and six. For most patients a voltage of 70 with a milliamperage of from 350 to 500 delivered for one-tenth second was sufficient to pro-

duce convulsive reactions. If the dose selected is insufficient, from ten to fifteen minutes should elapse before another is given, as tissue resistance diminishes after a treatment and returns to normal only after such an interval. There are few injuries if reasonable precautions are taken, and the general bodily reaction is not so disturbing as in metrazol shock, as the effect on the pulse rate and the blood pressure is less. Patients have less dread of the electric shock than of the metrazol method. The patient does not remember the shock itself. The dread that does exist is probably due to the general fear that is associated with being knocked unconscious. Of the 24 patients with depressions or depressed obsessive states, all but 3 showed moderate to well defined improvement or had remissions following electric shock. None of the 9 with schizophrenia treated were significantly improved so far as the essentials of the disease process are concerned. The conduct of 3 improved. Delusions became less conspicuous. However, the retreat and the ability to meet the situations of life were only transitorily changed for the better. One of the 3 chronically neurotic patients was unwilling to continue treatment after two shocks, because of the unpleasant transient failure of memory. The other 2 patients are still under treatment with results that are doubtful. They had resisted other forms of treatment.

Tularemia in Imported Rabbits. — Belding and Merrill state that tularemia has been introduced into Massachusetts by rabbits imported by game clubs and liberated to stock their covers. Infected rabbits have been found in shipments of cottontails from Missouri and Arkansas. Certification at the shipping source that the rabbits are from districts free of tularemia does not guarantee freedom from the disease. Since 1937, 24,689 imported rabbits have been liberated in Massachusetts. The first 3 endemic cases of human tularemia in this state have been reported since 1937. In the interests of public health further importation of rabbits should be prohibited by legislation, even though an endemic focus of tularemia appears to have been established.

New York State Journal of Medicine, New York

41:1315-1410 (July 1) 1941

Mental Hygiene Aspect of the Deferred Draftee. L. S. Selling, Detroit.—p. 1339.
*Clinical Features of Endometriosis. L. A. Sutton, Albany.—p. 1343.
Operation of Genetic Factors in Pathogenesis of Mental Disorders. F. J. Kallmann, New York.—p. 1352.

Endometriosis.—Sutton discusses clinical features of endometriosis based on a study of 656 consecutive cases which represent 13.2 per cent of all abdominal gynecologic operations performed on this service. Regardless of its location, the endometrium frequently displays the same physiologic changes as normal uterine mucosa in its response to menstruation, pregnancy and menopause. It is this attempt on the part of ectopic endometrial tissues to respond to normal physiologic stimuli which produces the pathologic conditions and symptoms. The various forms of endometriosis are classified into four divisions: direct, indirect, extraperitoneal and postoperative. There were 491 instances of peritoneal or indirect endometriosis and 92 of direct endometriosis. The other two groups are not considered specifically. Peritoneal endometriosis is frequently an accidental finding with few or no symptoms, but in advanced cases it may produce significant pathologic changes in the pelvis and become an incapacitating disease. Peritoneal endometriosis is frequently a clinical rather than a microscopic diagnosis. Only by repeated excision of small implants, immediate fixation and microscopic confirmation can one learn to recognize the small early and late lesions. Peritoneal endometriosis is rare in women less than 20 years or more than 60 years of age. It is most frequent between the ages of 31 and 40 regardless of the marital status. Single women between 21 and 30 years of age show a greater relative incidence than married women of the same age. Direct endometriosis occurs much more frequently in the fourth and fifth decades and almost always in women who have had children; repeated pregnancies seem to predispose to its development. No nonmalignant condition other than peritoneal endometriosis presents such a possible wide distribution of lesions or more bizarre clinical features. Its principal symptoms are dysmenorrhea, pelvic pain and sterility, while the chief symptoms of direct endometriosis are uterine bleeding and occasionally dysmenorrhea. The treatment of peritoneal endometriosis should be conservative whenever possible, and particularly in women less than 40 years of age. Any operation that leaves ovarian tissue in situ is considered conservative. Direct endometriosis of sufficient degree to produce bleeding cannot be controlled by conservative measures, and hysterectomy is indicated.

North Carolina Medical Journal, Winston-Salem

2:275-320 (June) 1941

Medical Problems in North Carolina. H. B. Haywood, Raleigh.—p. 275.
Fitness for National Emergency. N. B. van Etten, New York.—p. 278.
*Potassium Sulfocyanate in Treatment of Hypertension. V. S. Caviness, T. L. Umphlet, E. D. Peasley, T. A. Bell and G. H. Satterfield, Raleigh.—p. 283.
Frontal Lobes in Their Relationship to Ego and Future. W. Freeman and J. W. Watts, Washington, D. C.—p. 288.
Pancreatic Lithiasis with Report of Case. W. R. Stanford and T. H. Byrnes, Durham.—p. 291.
Chronic Atrophic Pyelonephritis (Golblatt's Hypertension): Case Report. T. W. Baker, Charlotte; B. D. Moore, Mount Holly, and W. M. Scruggs, Charlotte.—p. 295.
Intravenous Ergotrate at End of Second Stage of Labor. W. B. Bradford and W. Z. Bradford, Charlotte.—p. 297.
Swimming Pool Sanitation. H. B. Gotaas, Chapel Hill.—p. 299.
Radical Perineal Prostatectomy for Carcinoma. J. E. Dees, Durham.—p. 302.
Gastric Hemorrhage and Andresen Diet. C. T. Smith, Rocky Mount.—p. 306.

Potassium Thiocyanate for Hypertension.—Caviness and his associates used potassium thiocyanate for the treatment of 120 hypertensive patients. The results in 68.9 per cent were good (a reduction of more than 15 per cent in the systolic and diastolic pressure), fair in 11.5 per cent (a reduction of more than 10 per cent) and poor in 17, or 19.6 per cent (a reduction of less than 10 per cent). The authors recognize the fact that potassium thiocyanate is not a cure for hypertension, yet it produces satisfactory reductions in pressure, stabilizes the pressure at a safe level, apparently frees the patients from the danger of vascular crises (apoplexy and cardiac failure) and with reasonable care minimizes the danger of attacks of angina of effort. The nature of the active pressor substance in the blood is still not known. Five grains (0.32 Gm.) of potassium thiocyanate daily is the initial daily dose after breakfast. This dose is continued with the slightly limited diet and with a sedative for several weeks, during which time the concentration of potassium thiocyanate in the blood is determined once a week or more often. In some cases as the blood pressure drops it is preferable to decrease the dose rather than to stop the drug. Many patients will show a return to normal blood pressure after a few weeks of treatment and a blood potassium thiocyanate concentration little if any above the normal level for patients not on treatment. Some patients may require an increase in the dose. The authors do not increase the dose until the pressure has stabilized itself at the lower level effected by the initial dose of thiocyanate. The reasons are that (1) it is not advisable to reduce the pressure too rapidly, as too rapid reduction tends to produce headaches; (2) it is not advisable to make any drastic reductions in pressure because, if the systolic pressure drops too near the usual diastolic level, circulation may not be adequate, and (3) there is a cumulative action of this group of drugs, nitrite if it is being used. Furthermore, several days or weeks are required for full effects, and increasing the dose before a full effect has been secured would produce a more rapid drop in pressure than would be anticipated. The authors attempt to treat their patients with as low a blood potassium thiocyanate level as possible. Often satisfactory results were secured with relatively small increases in the blood levels of potassium thiocyanate. They rarely found it necessary to raise the potassium thiocyanate level above 9 mg. per hundred cubic centimeters of blood. Headaches, weakness and dizziness are relieved rapidly. The feeling of well being associated with the treatment is often quite rapid and may be independent of the response of the blood pressure. Tolerance to the drug has not developed.

Oklahoma State Medical Assn. Jour., Oklahoma City

34:235-280 (June) 1941

Irradiation Therapy of Skin Cancers. E. D. Greenberger, McAlester.—p. 235.
Our Method of Care of Fractured Knee Cartilages. C. A. Gallagher, Oklahoma City.—p. 237.
Further Experience with Fervaginal X-Radiation in Management of Carcinoma of Cervix. L. S. McAlister, Muskogee.—p. 239.
*Neuroblastoma, with Special Reference to Its Roentgen Manifestations. A. J. Ackermann, Oklahoma City.—p. 241.
Giant Cell Tumor with Malignant Change. O. G. Hazel, L. K. Chont and W. M. Hull, Oklahoma City.—p. 246.

Neuroblastoma.—Ackermann reports 4 cases of Hutchinson's type of neuroblastoma. The tumors represent a highly malignant variant of neoplasms arising from the sympathetic nervous system and are associated with extensive skeletal metastases. The roentgen appearance of the skeletal metastases is characteristic (destructive and proliferative osseous alterations), although several other pathologic conditions (congenital multiple bone syphilis, leukemia, lymphosarcoma, chloroma, erythroblastosis and Ewing's tumor) may have to be differentiated. The prognosis is grave. Irradiation has not affected the progress of the disease.

Pennsylvania Medical Journal, Harrisburg

44:1217-1376 (July) 1941

Position of Pediatrics in Present Day Practice of Medicine. B. S. Veeder, St. Louis.—p. 1233.
Management of Tumor of Testicle: Study of Forty-Two Cases. T. R. Fetter, Philadelphia.—p. 1240.
Round Table Conference on Clinical Significance of Jaundice. H. J. Tumen, J. G. Reinhold, J. E. Rhoads and I. S. Ravdin, Philadelphia.—p. 1251.
Medical Treatment of Glaucoma. F. H. Adler, Philadelphia.—p. 1263.
Carcinoma of Vulva. R. W. Teahan and H. Wammock, Philadelphia.—p. 1268.
Spontaneous Cerebrospinal Rhinorrhea. G. B. Jobson, Oil City.—p. 1275.
Restoration of Function After Fractures of Humerus. J. P. North, Philadelphia.—p. 1277.
Pathologic Aspects of Rheumatoid Diseases. J. Eiman, Abington.—p. 1281.
Metabolic Aspects of Rheumatoid Diseases. C. W. Scull, Abington.—p. 1286.
Experimental Etiology of Arthritis. W. I. Westcott, Doylestown.—p. 1292.
Clinical Aspects of Etiology of Chronic Arthritis. C. H. Kelchner, Allentown.—p. 1294.
Focal Infection in Rheumatoid Disease. T. F. Bach, Philadelphia.—p. 1297.
Surgery in Rheumatoid Disease. D. B. Pfeiffer, Philadelphia.—p. 1301.
Principles of Orthopedic Treatment of Arthritis. B. T. Bell, Philadelphia.—p. 1304.
Coordination of Therapy in Arthritis. R. Pemberton, Philadelphia.—p. 1306.
Study of Neonatal Mortality. R. M. Tyson, Philadelphia.—p. 1313.
Acute Diverticulitis of Colon. A. A. Walking, Philadelphia.—p. 1318.
Fractional Gastric Analysis in Newborn: Preliminary Report. J. A. Ritter, Philadelphia.—p. 1321.

Philippine Medical Association Journal, Manila

21:119-172 (March) 1941

Influence of Climatic Changes on "Interruptions" and "Relapses" in Leprosy. J. Manalang, Culion.—p. 119.
Organization of the Health Department of Quezon City. F. Z. Cruz, Quezon City.—p. 127.

21:173-222 (April) 1941

Protective Value of Different Types of Typhoid Bacteriophage in Mice. A. P. Roda and P. Saqueton, Manila.—p. 173.
Traumatic Abdominal Catastrophe. B. R. Diño and W. M. Valdez, Manila.—p. 177.
Evaluation in Thyroid Disease. H. W. Miller, Shanghai, China.—p. 185.

Physiological Reviews, Baltimore

21:383-528 (July) 1941

Endocrines in Invertebrates. Berta Scharrer, New York.—p. 383.
Organic Acid-Soluble Phosphorus Compounds of Blood. G. M. Guest and S. Rapoport, Cincinnati.—p. 410.
Nutrition of Fetus. A. S. G. Huggett, London, England.—p. 438.
Circulation of Bile Acids in Connection with Their Production, Conjugation and Excretion. B. Josephson, Stockholm, Sweden.—p. 463.
Physiology of the Gene. S. Wright, Chicago.—p. 487.

Radiology, Syracuse, N. Y.

36:651-778 (June) 1941

Pseudofractures in Diseases Affecting Skeletal System. J. D. Camp and J. A. L. McCullough, Rochester, Minn.—p. 651.
Excretory Urography for Children: Indications and Methods. G. M. Wyatt, Boston.—p. 664.
Intravenous Urography in Upright Position. J. A. Bowen and E. L. Shiflett, Louisville, Ky.—p. 672.
Roentgenology of Renal Tuberculosis. G. J. Thomas, T. L. Stebbins, Minneapolis, and S. T. Sandell, Oak Terrace, Minn.—p. 678.
Irradiation in Dermatology. A. C. Cipollaro, New York—p. 684.
Roentgen Treatment of Myxomatous Cutaneous Cysts. H. W. Jacox and L. J. Freedman, Pittsburgh.—p. 695.
Roentgen Therapy of Hemangiomas. F. M. Hodges, L. O. Snead and R. A. Berger, Richmond, Va.—p. 700.
Roentgen Changes in Cranial Vault Accompanying Diseases Resulting from Metabolic Disturbances. H. F. Hare, Boston.—p. 706.
Epidurography: Method of Roentgenologic Visualization of Protruded Intervertebral Disks. H. Sanford and H. P. Doub, Detroit.—p. 712.
Induction of Multipolar Cell Division with X-Rays and Its Possible Significance. P. S. Henshaw, Washington, D. C.—p. 717.
Fractures of Vertebrae Following Metrazol Therapy. G. R. Krause and C. L. Langsam, Cleveland.—p. 725.
Further Studies of Shoulder Joint, with Special Reference to Bicipital Groove. M. D. Sachs, Portland, Ore.; H. A. Hill, San Francisco, and E. L. Chuinard, Portland, Ore.—p. 731.
New Roentgen Sign of Pyloric Obstruction: Roentgen Visualization of Stomach with Use of Contrast Mediums. M. Feldman, Baltimore.—p. 736.
Ointment for Relief of Discomfort Due to Severe Irradiation Epidermitis. H. H. Ashbury, Baltimore.—p. 739.

Rocky Mountain Medical Journal, Denver

38:417-496 (June) 1941

Toxemias of Pregnancy. E. C. Sage, Omaha.—p. 434.
Problems of the Menopause. R. L. Faulkner, Cleveland.—p. 439.
Care of the Premature Infant. C. J. Stettheimer, Denver.—p. 443.
Recent Advances in Diagnosis and Treatment of Heart Disease. D. Deeds, Denver.—p. 447.
Bacteremia (Bacillemia) in Tuberculosis: Review. A. P. Damerow and M. L. Cohn, Denver.—p. 454.
Jaundice Caused by Lobar Pneumonia. A. E. Livingston and R. W. Moody, Denver.—p. 458.

South Carolina Medical Assn. Journal, Greenville

37:133-162 (June) 1941

Medical Preparedness. J. E. Paullin, Atlanta, Ga.—p. 133.
*Use of Powdered Sulfanilamide in Peritoneum: Report of Forty-Five Cases. C. A. Kinney, Florence.—p. 137.
The National Physicians Committee for Extension of Medical Service. W. Weston Jr., Columbia.—p. 140.

Powdered Sulfanilamide for Peritonitis.—Kinney placed fine granular powder of sulfanilamide in the peritoneal cavity of 45 patients. The powder was first sterilized in a dry oven at 120 C. for thirty minutes. This did not alter its crystalline powdery form. For patients with generalized peritonitis 10 Gm. of the drug was used for the average adult of 150 pounds (68 Kg.). Age and weight modify dosage. For the child from a fourth to a half of the adult dose should be satisfactory. The drug was poured directly from the test tube in which it was sterilized into the abdomen, and it was spread as widely over the viscera and peritoneum as was possible. After the peritoneum was closed a small amount of the original 10 Gm. which was left in the test tube was sprinkled in the tissues of the abdominal wall. The wounds of all but 4 patients were closed without drainage. The recovery of patients whose wounds were closed without drainage was more rapid, their sulfanilamide blood level was higher and generally their convalescence was less stormy than of those whose wounds were closed with drainage. The high postoperative fever usually seen in generalized peritonitis was not encountered, and the temperature usually reached normal between the third and the sixth postoperative day. Duodenal drainage was necessary for only 7 patients. The tissues of the abdominal wall showed a tendency to heal much more rapidly than when sulfanilamide was not used, and it apparently promoted healing of the wound. There were no severe toxic symptoms or complications. Of the 45 patients treated 18 had ruptured appendixes, 2 intestinal perforations from gunshot wounds, 1 an intestinal perforation from a fish bone, 1 a ruptured diverticulum, 4 gangrene of the small intestine with resections of from 2 to 6 feet of intestine, and 19 had tubo-ovarian abscesses with free pus. The only death of the series, giving a mortality of 2.2 per cent, was among the patients with ruptured appendixes.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

64:1-92 (March) 1941

Phenomenon of Myotonia. D. Denny-Brown and S. Nevin.—p. 1.
Vitamins E and B6 in Treatment of Muscular Dystrophy and Motor Neuron Disease. G. Fitzgerald and B. McArdle.—p. 19.
Visual Object Agnosia, with Special Reference to Gestalt Theory. W. R. Brain.—p. 43.
Significance of Lesions in Dentate Nuclei Apparently Consecutive to Disease of Frontal Lobes. G. E. Smyth.—p. 63.
Unilateral Exophthalmos (Proptosis): Causation and Differential Diagnosis. G. J. Dixon.—p. 73.

British Journal of Ophthalmology, London

25:241-304 (June) 1941

"Prognosis in Sarcoma of Uvea." T. R. Pahwa.—p. 241.
Vitamin C (Ascorbic Acid)—Its Therapeutic Value in Inflammatory Conditions of Cornea. T. K. Lyle and D. W. McLean.—p. 286.

British Journal of Radiology, London

14:219-254 (July) 1941

*Cancer of Bladder. R. Paterson.—p. 219.
Integration of Radiation Dosage and Absorption of Energy in Tissue for X and Gamma Radiation. F. Happey.—p. 235.
Research into Physical Factors Concerned in Indirect Radiography: IV. Quantitative Estimation of Actinic Value of Afterglow of Fluorescing Screen. B. Stanford.—p. 244.
Diaphragmatic Movement After Lower Abdominal Operations. G. F. Rees-Jones.—p. 247.
Subcapsular Rupture of Kidney: Case Report. E. R. Williams.—p. 248.
Further Experiments in X-Ray Screen Photography, 1,011 Subjects with Control Direct Radiographs. K. C. Clark and K. T. Poulsson, in collaboration with H. C. Gage.—p. 250.

Cancer of Bladder.—Paterson believes that, like cancer of the cervix, mouth and skin (of the face and hands), cancer of the bladder also lends itself to roentgen therapy and surgery. That this is not as yet accepted surgical practice is largely due to the fact that the scarcity of material has taken therapists a long time to work out satisfactory roentgenologic methods. The classification of cancer of the bladder from a roentgen and therapeutic point of view is best based on macroscopic study, which will reveal the tumors to be of three types: benign papilloma, noninfiltrating cancer and infiltrating cancer. The author outlines the pathologic and clinical features of each of these types. Roentgen diagnosis is usually based on contrast cystography, but "relief pneumocystography" seems to give considerable promise. Good roentgen therapy is to be preferred to surgery in all cases, even early, as a first treatment. Existing factors must govern the choice between radium and roentgen therapy. Cystoscopic implantation of radon seeds is condemned. Roentgen therapy to be curative requires the use of high dosage, small fields and special methods of beam direction. The author states that of 60 patients with cancer of the bladder treated between 1932 and 1935 by intravesical radium and followed up in five years 4 were not traced, 11 were alive and 10 of these were known to be well and symptom free. Of 33 patients with early and 31 with late involvement assessed at three years 58 per cent of the former and 7 per cent of the latter were alive. A further 17 patients were treated only by roentgen therapy; 1 of them could not be traced and 5 were well and symptom free two years after treatment. The author states that radical roentgen therapy is of too recent development for statistical survey, but even so these results are good considering that the group includes many palliative cases and treatments not planned on the present beam direction policy.

Edinburgh Medical Journal

48:433-504 (July) 1941

Glycosuria in Pregnancy as Predisposing Cause of Vaginal Thrush, with Special Reference to Its Importance in Treatment of This Condition. W. G. Liston and Fanny B. Chisholm.—p. 433.
Progress in Treatment of Malignant Disease. R. McWhirter.—p. 452.
Observations on Tuberculosis of Larynx. G. E. Martin.—p. 470.
Effect of Wartime Conditions on Administration of Tuberculosis Service. S. Laidlaw.—p. 488.
Some Observations on Calcium Requirement Standards. J. P. McGowan.—p. 494.

Lancet, London

1:777-810 (June 21) 1941

Nature of Disease in Infancy. J. C. Spence.—p. 777.
*Compression Treatment of Crush Injuries of Limbs. D. H. Patey and J. D. Robertson.—p. 780.
Xanthomatosis of Skeleton in Adult: Lipoidosis of Schüller-Christian Type. E. L. G. Hilton and K. Eden.—p. 782.
Pelvic Hydatid Cyst. E. L. Nicolson.—p. 784.
Hysteria: Theory and Practice in the Two Wars: Case. J. Rickman.—p. 785.
*Local Concentration of Sulfonamide Compounds Inserted into Wounds. F. Hawking.—p. 786.
Hairline Suturing in Casualty Work. J. Gordon.—p. 788.

Compression Treatment of Crush Injuries of Limbs.—On the hypothesis that the crush syndrome might be caused by the profuse leakage of blood constituents into a limb suddenly decompressed, the capillaries of which had temporarily lost their function through an impaired blood supply during the compression, Patey and Robertson treated 2 such patients by applying intermittent positive pressure up to 60 mm. of mercury to the edematous area. A special large blood pressure cuff and a passive vascular exercise motor were used. This constant mechanical massage of the injured tissue produced no ill effects. This argues against the presence of a toxic factor. Following treatment both patients had a greatly increased output of urine, softening and later disappearance of edema from the affected tissues, a fall to within normal limits of blood urea and recovery. The authors suggest that this treatment be given further trial in crush injuries and in patients who have had tourniquets left in position too long.

Local Concentration of Sulfonamides in Wounds.—After inserting a sulfonamide compound into experimental wounds, Hawking determined its concentration in the cavity of the wound adjacent to the site of its deposit, in the distal parts of the cavity and in living and dead tissue around the edges of the wound. He found that sulfanilamide will travel quickly from one part of the cavity to another and that it will diffuse slowly through dead tissue but that its local penetration into tissue with an active intact circulation does not extend more than 2 or 3 mm. The other sulfonamide compounds produced lower concentrations in the distal parts of wounds, the order of diminution being sulfathiazole, sulfanilylguanidine, sulfadiazine and sulfapyridine. Both sulfathiazole and sulfapyridine diffuse through dead tissue only at a slow rate and they resemble sulfanilamide in their restricted penetration into tissue with an intact circulation. The author concludes that (1) sulfanilamide will probably travel from the central cavity of the wound down into the crevices; when the wound is being dressed the drug should be well distributed; (2) sulfanilamide will penetrate slowly into fragments of dead tissue, and (3) it will not penetrate far into tissue with an intact circulation. Such tissue is reached more quickly by oral or intravenous medication. The disadvantages of sulfanilamide are rapid disappearance from the wound and lower bacteriostatic activity. Sulfathiazole persists in the wound for a longer period and its bacteriostatic activity is much higher, but it is expensive and of lower concentration and diffusibility. Sulfapyridine possesses no advantage compared with sulfathiazole but has the disadvantage of still lower concentration and of persisting in a wound so long that it might act as a foreign body. There is little indication that sulfanilylguanidine and sulfadiazine are any more suitable for local therapy than sulfanilamide or sulfathiazole. Sulfanilamide will probably be used most widely; it might be advantageous to reinforce it by adding from 10 to 50 per cent of sulfathiazole to it. The actual proportions should depend on experience and economy.

Medical Journal of Australia, Sydney

1:747-772 (June 21) 1941

Cryptotrophic Factors in Nutrition. W. A. Osborne.—p. 747.
Use of Pooled Human Serum for Treatment of Hemorrhage and Shock. Marjorie Bick and E. B. Drevermann.—p. 750.
Use of Pooled Human Serum in Experimental Pertussis. E. A. North and G. Anderson.—p. 754.
Trial of "Progynon" Therapy in Thyrotoxicosis. A. R. Robinson.—p. 756.

Schweizerische medizinische Wochenschrift, Basel

71:549-576 (April 26) 1941. **Partial Index**

*Principles of Cancerigenic Action of Tobacco. A. H. Roffo.—p. 549.
*Gas Gangrene Infection After Injections. M. Saegesser.—p. 552.
Pharmacologic Investigations on New Type of Substance for Reduction of Blood Perfusion of Mucous Membranes. R. Meier and R. Müller. —p. 554.
Privine: A New Preparation to Reduce Swelling of Nasal Mucosa. A. M. Hild.—p. 557.
Action of Privine on Normal and Pathologic Eye. J. Babel.—p. 561.
Clinical Study of Acromicria, Syndrome of Brugsch. M. Schachter and M. Wahl.—p. 563.

Cancerigenic Action of Tobacco.—Roffo reports experimental investigations on the cancerigenic action of tobacco. Three products were extracted from tobacco by means of fractionated distillation. The first was obtained at a temperature of 100 C. (212 F.), the second by gradually increasing the temperature from 120 to 350 C. (248 to 662 F.), the third by further heating of the residue. The last two products resembled tar. Rabbits in groups of 20 were subjected to painting experiments with each of the three products. The first product produced no lesions; the second and third produced papillomas which later developed into true carcinoma. Since only tobacco tar distilled at high temperatures produced cancerous lesions, nicotine was not involved in the cancerigenic effect because it is decomposed at temperatures of less than 100 C. (212 F.). Further studies on tobacco tar yielded a cancerigenic benzpyrine. Animal experiments with this substance proved it to be highly cancerigenic. Most of the animals died in from one to two years. The first lesions appeared more rapidly after treatment with the benzpyrine than with total tobacco tar. The author concludes that in view of the evident cancerigenic property of tobacco the smoking habit should be discouraged. Not all smokers develop cancer, apparently because a predisposition to cancer is the second required factor, and fortunately not all smokers have this predisposition.

Gas Gangrene Infection After Injection.—Saegesser discusses expert testimony rendered in a law suit involving fatal gas gangrene infection following an injection. The alcohol in which the syringe was stored was found to contain gas gangrene bacilli. The testimony presented insisted that it is general practice of clinics and practitioners in Germany to store syringes and cannulas for the purpose of disinfection in 70 per cent alcohol. Recent investigations proved that gas gangrene bacilli may remain alive in 70 per cent alcohol as well as in the syringes stored therein. Since this fact is not generally known it cannot be regarded as a punishable offense that in the case under consideration the syringes had been stored in 70 per cent alcohol for the purpose of disinfection. The question arises whether the practitioner can be charged with "inadequate care" if he continues to use alcohol to store his syringes. Kirschner advocates dry storage of syringes in single containers impermeable for germs. Each syringe and cannula should be used only once before it is newly sterilized. The author maintains that it is impossible to enforce uninterrupted sterility. The chain is likely to be broken between sterilization container and storage container, and between the storage container and the site of injection. The cause of the injection abscess is not a question of sterilization and storage of syringes and cannulas alone. Gas gangrene infection is more frequent after injections of caffeine, epinephrine and sodium chloride than after other substances. Since caffeine and epinephrine are frequently employed under conditions of haste, a mistake in asepsis might be involved. There is also the possibility that gas gangrene spores in the skin of the patient are rendered more virulent by these solutions. Files used for opening ampules have likewise been known to harbor gas gangrene bacilli. If the chain of sterility is to remain unbroken, the physician must scrub his hands as before an operation and sterilize not only syringes and cannulas but also ampules and files. The author accepts Kirschner's postulates for hospitals but not for the practitioner. The practitioner will reject Kirschner's demands not because of a lack of responsibility but because he knows from experience that the sterilization employed by him is adequate.

Policlinico, Rome

48:601-648 (April 7) 1941. Prac. Sec. **Partial Index**

*Hematogenic Acute Osteomyelitis: Treatment by Expectation. R. Grasso.—p. 601.
Diathermy Short Wave Therapy in Freezing. P. Stefanutti.—p. 426.

Acute Osteomyelitis.—According to Grasso, hematogenous acute osteomyelitis is not a primary disease of the bone but a localization of a general septicemia or septicopyemia. The author observed roentgen alterations in the bone in the course of grave acute hematogenic osteomyelitis in 10 children treated by early immobilization. Surgical interventions were performed late in the course of the disease. The limb was immobilized in a plaster cast which included the joint above and below the osteomyelitic focus. A local abscess developing in the course of the disease will probably open spontaneously and will heal. If it does not, it should be opened by a small incision late in its development. Roentgenograms taken early in the course of the disease showed large sequestrums which became absorbed later on as the bone acquired compactness. In some cases small sequestrums remained and were treated by a sequestrotomy three months after convalescence. The spontaneous course of the disease in the group observed suggests that early surgical intervention is useless and harmless. It lowers defense reactions and opens up new routes for the spread of the disease. Early immobilization prevents secondary septic metastases to bones and viscera, local infiltration, arthritis and spontaneous fractures. The period of hospitalization of patients treated by early immobilization is short, and the functional and cosmetic results are satisfactory. Chronic and recurrent forms frequent in cases treated by early surgery do not seem to develop after early immobilization.

Arch. Urug. de Med., Cir. y Especialid., Montevideo

18:149-268 (March) 1941

*Tattooing for Identifying BCG Vaccinated Children. D. Gómez and J. C. Etcheverry.—p. 149.
Continued Aspiration in Treatment of Digestive Fistula. J. E. Cendan Alfonzo and J. P. Otero.—p. 211.

Tattooing BCG Vaccinated Children.—Gómez and Etcheverry practice systematically BCG vaccination of all infants born in the maternity hospital under their care. The infants are vaccinated on the first to third day after birth by the modified method of multiple puncture of Rosenthal. More than 2,000 infants were thus vaccinated in the course of the last year. Immediately after vaccination the infant is marked by a tattooed black spot on the plantar aspect of the big toe. The spot is made with indelible ink by the common puncture technic. The method will make it easy to identify them in the future and to estimate the duration of immunity.

Bahia Medica, Bahia, Brazil

12:1-40 (Jan. & Feb.) 1941. **Partial Index**

*Cancer in Schistosomiasis. Aggeu Magalhães and Barros Coelho.—p. 7.

Cancer in Schistosomiasis.—Aggeu Magalhães and Barros Coelho found among 2,014 necropsies in the Department of Pathologic Anatomy of Recife histories of 8 cases of liver cirrhosis with primary cancer. In 5 of these Schistosoma mansoni was present. The eggs of the parasites were encysted by the connective tissue in the portal spaces and did not come in contact with liver cells or with the tumor cells. The authors believe that the toxins of Schistosoma mansoni and not the parasite exert a cancerogenic effect in persons with predisposition to cancer. The virulence of the toxins depends on the thickness of the connective tissue capsule about the eggs. Primary cancer of the liver combined with cirrhosis and schistosomiasis is due to the toxins of Sehistosoma which reach the liver by way of the portal blood. It is not dependent on the cirrhosis. Rectal schistosomiasis combined with rectal cancer is rare. Benign rectal tumors may develop from rectal schistosomiasis because the eggs stimulate an energetic connective tissue reaction causing the eggs to become encysted and the virulence of the toxins of the parasite to be greatly diminished.

Beiträge zur Klinik der Tuberkulose, Berlin

94:445-634 (May 3) 1940. **Partial Index**

Neuromuscular System of Lungs: Anatomic and Physiologic Investigations. W. Bronkhorst and C. Dijkstra.—p. 445.
Introduction to Spirography and Ergometry. L. Brauer and W. Wolf.—p. 504.
Quantitative Pulmonary and Circulatory Tests in Miners, with Special Reference to Silicosis. O. Zorn.—p. 544.
*Investigations of Tuberculous Bacillemia in Mother and Child Intra Partum. J. Gigl.—p. 619.

Tuberculous Bacillemia in Mother and Child During Birth.—Gigl investigated transmission of tuberculous infection from mother to the neonatal child by the culture and the biologic tests of the blood of 250 unselected pregnant women taken before, during and after delivery and the umbilical blood of their 250 newborn infants. In addition, viscera of 35 stillborn children, partly macerated, were tested for tubercle bacilli. In only two pregnant women were bacilli found in the blood, but no clinical or roentgenologic evidence of the disease. The children were normal. The culture of the first mother, when injected into guinea pigs, produced a negative reaction; that of the second, though Pirquet's test had been negative, killed the animal within two months. Miliary tuberculosis was found in all organs. The blood of eleven other mothers showed no tubercle bacilli though their history demonstrated apex tuberculosis (9), facial lupus (1) and healed tuberculosis of the lung and spine (1). Tuberculous bacillemia was encountered in only 2 of the 250 newborn. The mother of the first presented insignificant foci in the lungs. The mother of the second child died five days post partum from miliary tuberculosis. Both of these children, now 5 years old, were repeatedly examined and are pronounced, morphologically and biologically, healthy. Tuberculous infection was found in 2 of the 35 stillborn children. A third disclosed only microscopic evidence of the disease. The mothers of these three had been tuberculous since youth. One of them died soon after delivery. Tubercle bacilli, latent in some otherwise not determinable focus, may become activated by the process of parturition and then carried into the blood stream. Observations of other workers that the offspring of mothers who have passed through a severe tuberculous infection may present no evidence, at birth or years later, of the disease are confirmed. Intrauterine or postpartum transmission of tubercle bacilli from mother to child is possible but rare.

Deutsche medizinische Wochenschrift, Leipzig

67:169-196 (Feb. 14) 1941. **Partial Index**

*Mechanism of Stimulation of External Secretion of Pancreas in Human Subjects. J. Hartmann.—p. 169.
Clinical Significance of Labyrinthine Hyperirritability, Particularly of Nystagmoclonus. G. Wilke.—p. 173.
Relations of Friedreich's Ataxia to Diabetes Mellitus. G. Köhne.—p. 177.
C Vitamin and Clinical Experience. W. Stepp and H. Schroeder.—p. 179.
Treatment of Whooping Cough with Ultrashort Waves. J. Wirth.—p. 183.
Use of Prostheses During and After Resection of Maxilla. O. Hofer.—p. 184.

Stimulatory Mechanism of External Pancreatic Secretion.—Hartmann reports observations on stimulation of the pancreas with the duodenal tube and olive oil. Theoretically, disturbances in the physiologic secretory mechanism can develop in the following manner: (1) by a reduction in the physiologic stimulus in the production of gastric juice, (2) by an increase in it, (3) by a reduction or increase in the irritability of the terminal nerve apparatus in the pyloric region, (4) by a disturbance in the secretin formation in the duodenum. In about 50 per cent of patients with achylia, stimulation with the duodenal tube or by olive oil disclosed a more or less reduced pancreatic ferment production. Neither clinical nor experimental investigations have demonstrated so far whether gastric hypersecretion influences the pancreatic function. That increased irritability of the nervous apparatus influences the pancreatic secretion has been demonstrated by the author and by other investigators. It is possible that inflammatory disorders of the small intestine are accompanied by increased secretin formation. When dysfunction of the pancreas has been demonstrated, it will rarely be possible to differentiate between an organic lesion of the pancreas or secretory impairment. The therapy should be directed chiefly against disorders of the small intestine, secretory disturbances of the stomach and diseases of the organs adjoining the pancreas (cholecystopathias and disorders of the gastrointestinal tract), because they influence the pancreatic secretion. Administration of pancreatic ferments produces favorable results not only in case of hypofunction of the pancreas but also in cases of irritation. The ferments possess both a substitutional and a regulatory effect. The author observed a stimulating effect of large doses of pancreatic ferment even after severe organic impairment of the gland.

67:197-224 (Feb. 21) 1941. **Partial Index**

*Allergic Gastritis. K. Hansen.—p. 197.
*Raw Potato Juice in Feeding of Infants and Children. W. Catel.—p. 203.
Flexner Dysentery in Brittany and Its Treatment. H. Otto.—p. 205.
C Vitamin and Clinical Experience. W. Stepp and H. Schroeder.—p. 208.

Allergic Gastritis.—Hansen believes that some cases of gastritis are of allergic origin. The symptoms of allergic gastritis do not differ from those of other forms, but patients with this form or members of their families frequently exhibit symptoms suggestive of allergy. A large quantity of one of the presumably offensive antigens is given in addition to an otherwise indifferent meal. If severe symptoms of gastritis with vomiting, diarrhea or migraine, urticaria, bronchial asthma or shock symptoms develop, it is clear that the particular antigen is the cause of gastritis. Radical removal of this antigen from the diet is quickly followed by the disappearance of all symptoms. The author studied Widal's crisis in 30 patients with definitely established allergic gastritis and in 50 persons who were either free from gastritis or had a nonallergic type. These two groups were subjected to roentgenoscopy of the gastric mucosa. In patients with allergic gastritis, roentgenoscopy was performed before the antigen-free dietetic treatment was begun, then after the symptoms had subsided, first with an antigen-free contrast medium and later with a contrast medium to which the antigen was added. Several graphs illustrate that Widal's hemoclastic crisis can be elicited by exposure to the antigen. The third roentgenogram, the one following the contrast medium with antigen admixture, reveals motor unrest of the stomach from five to fifteen minutes after the ingestion. Peristalsis is greatly increased and there is hypersecretion, pylorospasm, antiperistalsis and, in severe cases, vomiting. Bronchial asthma, migraine and urticaria may develop. The most frequent cause of allergic contact gastritis is milk and eggs, less often fish and rarely flour. The author is unable to ascertain the proportion of gastritides of the allergic type but estimates it to be at from 20 to 30 per cent. In gastric and duodenal ulcer about the same percentage of allergic cases has been assumed. The causal connection between allergic gastritis and ulcer is probable in some cases. The knowledge that many ulcer patients have a nutritive allergy necessitates a fundamental change in the customary ulcer diets. The diet must be individualized on the basis of antigen tests.

Raw Potato Juice.—Catel fed raw potato juice to infants and children. Unpeeled potatoes, thoroughly brushed in cold water, were grated, and the pulp was pressed out and placed in an ice box for one hour in order to deposit the dissolved potato starch. Vitamin A could not be demonstrated in the raw potato juice. The vitamin C content decreased somewhat with the age of the potatoes. Storage of the juice likewise decreased the vitamin C content. Freshly prepared juice is best and should be used on the day it is prepared. The juice was given to premature infants as a supplement to bottle feeding; the daily quantity varied between 10 and 20 cc. For infants between 2 and 4 months the daily dose was 25 cc., and for older infants up to 60 cc. Young children and children of school age were given the juice diluted with equal parts of water or milk and slightly sweetened. The daily quantity of the mixture was between 100 and 200 cc. Administration in this form encountered few difficulties. Gastrointestinal disorders occurred in a few of the young children but not in infants. The author emphasizes not only that the raw potato juice is a cheap source of vitamin C but that it contains vitamin B_1 and B_2, as well as proteins, carbohydrates and minerals.

Medizinische Klinik, Berlin

37:241-268 (March 7) 1941. **Partial Index**

Dietetic Problems in Gastritis and Ulcer. D. Jahn.—p. 241.
*Treatment of Epididymal Tuberculosis. E. Meyer.—p. 244.
Occupational Diseases Caused by Industrial Solvents. B. Kemkes.—p. 246.
Results of Diagnosis of Diphtheria with Clauberg-Herrmann Plate. O. Ernst.—p. 251.

Treatment of Epididymal Tuberculosis. — The only promising treatment, according to Meyer, is epididymectomy. Semicastration is reserved for the advanced cases in which the testis is largely destroyed or in which radical surgery would interfere with the vascularization of the testis. Except in miliary tuberculosis and in the case of children, tuberculosis of the male gonads always begins in the tail of the epididymis. This and the fact that the process develops slowly and attacks the testis late explain why epididymectomy is adequate in the early stage. Epididymectomy obviates the prolonged fistulous suppuration or prevents it and greatly shortens duration of the disease. The operation is simple and can be performed under local anesthesia. It preserves the secretory testicular function provided the artery has not been injured. The only contraindication to the surgical treatment of tuberculous epididymitis is a greatly impaired general condition. In from 15 to 30 per cent of the surgically treated cases involvement of the other side is to be expected. The value of early epididymectomy is proved by the fact that occurrence on the other side is twice as frequent in the advanced cases in which semicastration becomes necessary. To prevent occurrence on the other side, one may resect the spermatic duct of the opposite side at the first operation. This does not prevent hematogenous infection of the remaining epididymis, but it prevents intracanalicular infection. None of the local conservative methods equal the efficacy of surgical treatment. Operation alone is not sufficient. A general hygienic-dietetic regimen and supervision for a number of years are necessary.

Münchener medizinische Wochenschrift, Munich

88:209-236 (Feb. 21) 1941. **Partial Index**

Objects and Problems of War Surgery During Action. M. Ernst.—p. 209.
*Etiology of Epidemic Keratoconjunctivitis. E. Gildemeister and H. Peter.—p. 213.
Is Epidemic Keratoconjunctivitis of Diphtherial Etiology? A. Nagel.—p. 216.
*Occurrence of Typhoid Bacteria in Blood During Incubation Period. H. Preuss.—p. 218.
Technic of Intracutaneous Tuberculin Reaction and Determination of Threshold for Tuberculin. Ickert-Stettin.—p. 219.
Rhythmic Mechanical Pressure Fluctuations in Abdominal and Thoracic Cavity and Their Importance for Life and Organ Function (Biomotor). R. Eisenmenger.—p. 223.

Etiology of Epidemic Keratoconjunctivitis.—According to Gildemeister and Peter, keratoconjunctivitis, which appeared in Germany in epidemic form in 1938, was readily transmissible; physicians and nurses often developed it. Although the disease is probably not new, there is no record that it ever occurred with such high frequency. Attempts to explain its etiology failed, for neither bacteria nor a virus could be identified as the causal agent. Behr and Zeissler found in the ocular secretions of patients with keratoconjunctivitis bacteria showing morphologic, cultural and biochemical characteristics of diphtheria bacilli and giving positive results in animal experiments. The pathogenicity of these bacilli is slight; however, instillations or injections of diphtheria serum exerted a favorable therapeutic effect. Behr concluded that keratoconjunctivitis is caused by true, although weakened, diphtheria bacilli. Zeissler submitted 13 of the bacterial strains to the authors. With one exception bacteria isolated by Zeissler were found to be not true diphtheria bacilli; they belong to the group of pseudodiphtheria bacilli and they do not show uniform characteristics. The authors reject Behr's opinion that epidemic keratoconjunctivitis is caused by diphtheria bacilli. They believe that the therapeutic results obtained with diphtheria serum were due to the nonspecific effect.

Typhoid Bacilli in Blood During Incubation Period.—Preuss states that culture of typhoid bacteria from blood is one of the most reliable aids in the early diagnosis of typhoid. He reports a case in which cultures yielded typhoid bacilli from the blood four days before there were symptoms. In investigations for detection of typhoid carriers it is advisable to study not only blood serum for agglutinins but also the blood clot for the presence of bacteria.

88:321-352 (March 21) 1941. **Partial Index**

War Experiences in a Field Hospital. U. Wolff.—p. 321.
"Exogenically Stimulated Endogenic Reinfection" of Tuberculosis in Decisions on Military Service Injuries. S. Graff.—p. 324.
*Peptic Ulcer and Angina Pectoris. M. Hochrein and I. Schleicher.—p. 328.
Practitioner and Carcinoma of Cervix Uteri. H. Hinselmann.—p. 334.
*Lipodystrophy and Lipohyperplasia After Injections of Insulin. W. Beckert.—p. 336.
Multilocular Cystoma of Lower Jaw. O. Ziegler.—p. 338.
Influenza Myositis. J. Korth.—p. 339.

Peptic Ulcer and Angina Pectoris.—Hochrein and Schleicher believe that the same mechanism operates in peptic ulcer and in angina pectoris. This pathogenic mechanism is a defective vasomotor regulation of the peripheral blood perfusion, designated as neurocirculatory dystonia. In stenocardia, as in ulcer, hereditary constitutional predisposition is apparent. There is a general nervous hyperirritability. There are vegetative disturbances such as a tendency to constipation, diarrhea, meteorism and excessive sweating and vasomotor disturbances in the form of headaches, insomnia and cold extremities. Occasionally this picture is supplemented by hypochondria, depression and hyperirritability. The vagus tonus predominates. This becomes manifest in a tendency to bradycardia, hypotension and respiratory arrhythmia. Angina pectoris, as well as ulcer, is especially frequent in men. The authors cite clinical observations which corroborate the close relationship between peptic ulcer and coronary insufficiency, pointing out that disturbances in the cardiac blood perfusion, palpitation, sensation of oppression and cardiac pain are frequently observed even in young ulcer patients. Electrocardiographic studies on 100 ulcer patients with and without cardiac symptoms revealed that, like coronary insufficiency, ulcer is frequently accompanied by deformities in the ST interval and the T deflection. The authors illustrate the significance of vagus neurosis in neurocirculatory dystonia by the description of cases of stenocardia and peptic ulcer in the presence of hiatus hernia or of esophageal diverticula. Neurocirculatory dystonia can be demonstrated by testing the thermic reflex irritability. Excessive or paradoxic vascular reflexes to thermic stimuli indicate neurocirculatory dystonia.

Lipodystrophy and Lipohyperplasia After Insulin Injections.—Beckert states that lipodystrophies and lipohyperplasias as a result of insulin injection are not as rare as is generally believed. Examination of 169 diabetic patients who had received insulin for more than four years revealed these disorders in 59 (approximately 35 per cent). Lipodystrophy was seen in 37, lipohyperplasia in 15 and both conditions in 7. The majority (71.2 per cent) were women. The changes in the fat tissues occurred at the sites of injection, but in a few cases atrophies were noticeable in areas where insulin had never been injected. Predisposition, use of the same site for injection, large doses of insulin and trophoneurotic disturbances are considered chief causes of these peculiar changes in the fat tissue. If the site of injection is changed, the lesion often disappears.

Wiener klinische Wochenschrift, Vienna

54:239-258 (March 21) 1941

Asthma Remedies. R. Rössler.—p. 239.
Chemotherapeutic Progress in Treatment of Meningitis. S. Unterberger.—p. 242.
*Diagnostic Value of Gordon's Test for Hodgkin's Disease. E. Lauda.—p. 244.
*Method of Estimation of a Depot Insulin (Native Insulin). F. Leypold.—p. 246.
Distant Radium Irradiation. E. Maier.—p. 249.

Gordon's Test in Hodgkin's Disease.—Lauda suggests that Gordon's test for Hodgkin's disease is of little diagnostic importance. The characteristic lesion in the nervous tissue of rabbits or guinea pigs following the intracerebral injection of lymph node material is due to the presence of eosinophils in the tested material. The Gordon test has a certain degree of

specificity, because in many cases of Hodgkin's disease the granulation tissue has a characteristic eosinophilia, whereas eosinophilic elements are practically absent from human lymph nodes. In myelosis with myeloid and eosinophilic transformation of the lymph nodes positive rabbit tests are obtained and even in a case of carcinomatous metastasis of lymph nodes in which microscopic examination disclosed eosinophils Gordon's test was positive. Liebegott's studies on 31 cases of Hodgkin's disease likewise demonstrated the strict dependence of Gordon's test on the presence of eosinophils. Statistical reports reveal that Gordon's test is positive in only from 60 to 80 per cent of cases of Hodgkin's disease and the author obtained positive Gordon tests in only 2 out of 8.

The Value of Depot Insulin.—Depot insulins, according to Leypold, reduce the number of injections, produce a more uniform blood sugar curve and increase the carbohydrate tolerance, but their use involves certain disadvantages, such as insidious hypoglycemic attacks, poor local tolerance and possible sensitization and anaphylaxis due to the protein addition. His experience with "native insulin," a depot insulin containing the native protein-insulin complex of the pancreas, covers a period of six months in 82 patients. The local tolerance for the native insulin was good and the substance produced a uniform and prolonged reduction in blood sugar. Insidious hypoglycemic attacks were absent. A change to native insulin should be tried in patients who exhibit a tendency to hypoglycemic attacks.

Acta Medica Scandinavica, Stockholm

107:107-178 (April 23) 1941. **Partial Index**

Pure Heparin for Prevention and Treatment of Thrombosis. E. Jorpes. —p. 107.
Heparin as Prophylactic Against Postoperative Thrombosis. C. Crafoord. —p. 116.
Use of Heparin as Prophylactic Against Thrombosis Following Gynecologic Operations. P. Wetterdal.—p. 123.
Use of Heparin in Obstetric Practice as Means of Preventing Thrombosis. H. Leissner.—p. 127.
*Pulmonary Embolism Following Confinement, Treated with Heparin: Three Cases. S. Clason.—p. 131.
*Early Diagnosis of Venous Thrombosis by Means of Venography and Abortive Treatment with Heparin. G. Bauer.—p. 136.

Heparin for Pulmonary Embolism.—Clason reports 3 cases of postpartum embolism, 2 of which were extremely serious, in which treatment with heparin was successful. He does not contend that heparin directly saved the lives of the patients, but it did prevent further attack and it shortened the course of the disease considerably. The cases suggest that heparin can be used in simple pulmonary embolism and in pulmonary embolism with toxicosis. In no other instance of embolism—except when the patient dies immediately—has the author been so convinced that the prognosis was hopeless as he was in 2 of his 3 cases. In the first case heparin was resorted to as a last resort, and in the other case heparin was tried on the ground that a substance natural to the body would be less dangerous in toxicosis than any pharmaceutical ordinarily used, and that an increased blood percolation should be expected to be valuable whatever the nature of the disease.

Venous Thrombosis and Venography.—Bauer states that venography offers a reliable method for the diagnosis or rather for the anticipation of venous thrombosis. This is important because experience shows that patients with fully developed thromboembolic manifestations are not benefited by heparin treatment to the same extent as the early cases. Venography presents a surer and earlier diagnostic method. One must obviously be exceedingly watchful. The examination must not be put off until cleancut clinical symptoms have developed. "Thrombosis-threatened" patients cannot be venographed at random. The right procedure is to keep these patients under strict supervision. The signs that must be heeded are the slightest unexplained rise in the pulse rate or temperature, any unaccountable general restlessness, the least sign of pulmonary infarction, a transitory aching in the calf, slight changes in the tint of the skin, a slight change in the consistency of the calf muscles and/or a tender spot on the back of the lower leg. The last mentioned sign is perhaps most pathognomonic of all early symptoms of thrombosis. With all these signs the uncertainty is considerable, but with venography in such cases a certain diagnosis is obtained in cases which otherwise would only be suspected. Usually in the venogram there will then be found an absence of opaque filling in one or all of the deep veins of the lower leg, and, with that, not only is the diagnosis assured but objective photographic evidence is obtained. Should a normal venogram be obtained—this has occurred in about one fifth of the author's cases—the possibility of thrombosis is excluded and with it all false conclusions respecting the result of a therapy instituted on a mere likelihood of thrombosis. Venography provides one of the requisites for successful heparin treatment. Heparin has no direct effect on thrombotic masses that have already entirely filled the vascular lumen and begun to involve the wall. On the other hand, it is able to prevent a propagation of these masses. Within a thrombosed lower leg, changes characteristic of the former stage are probably already present and no great benefit is to be expected from heparin. According to the author's experience, obliteration of the deep veins has no noteworthy significance if it is confined to the lower leg. Occlusion of the veins of the thigh may be prevented by heparin therapy. If on venography the femoral vein is found to be well defined and there are no thrombotic masses in it, immediate treatment with heparin ought to prevent such masses from appearing. The author states that that is what actually happens. He presents comparative results in 21 patients treated with the substance and in 32 not so treated. An early thrombosis of the lower leg had been venographically demonstrated in the 32 patients not given heparin. These patients received no heparin but in other respects were treated in the generally accepted way. The thrombotic process remained localized to the lower leg in only 25 per cent of the cases; the femoral vein of 75 per cent was also attacked and a pronounced phlegmasia alba dolens followed. In 31 per cent the thrombosis became bilateral, in 16 per cent an extension of the process was observed to the great pelvic veins and in 1 death ensued because of thrombosis of the portal vein. A further 34 per cent had larger or smaller pulmonary infarcts and in 1 there was a lethal pulmonary embolism. The average time in bed of these control patients after the thrombosis was diagnosed was forty-three days. In contrast to the foregoing, there were no failures or dubious results among the 21 heparin treated patients. Without exception the temperature and pulse curves, which were commencing to rise, became normal again within two to four days, and within this time nearly all tenderness on palpation of the lower leg, all swelling and aching vanished. The patients were usually able to get up from six to seven days after the diagnosis was made, provided the primary disease did not prolong their stay in bed. Spread of the thrombosis and pulmonary infarcts were not observed. As a rule the patients required heparin administration for only three to five days and after this time were regarded as cured. The results suggest an abortive treatment of thrombotic disease. The heparin was given three times a day in 100 mg. doses.

Nordisk Medicin, Stockholm

10:1109-1190 (April 12) 1941

Norsk Magasin for Lægevidenskapen

Case of Hysterical Dermatosis. T. Aalvik.—p. 1129.
Simple Hemorrhagic Proctitis. P. Owren.—p. 1132.
*Two Cases of Blood Type A_3 (Friedenreich): Subtypes of A and Blood Transfusion. O. Hartmann, K. Hadland and J. U. Lundevall.—p. 1136.

Blood Type A_3 and Transfusion.—Hartmann and his associates conclude that, while grave complications are not probable in transfusion between the subtypes of A, minor reactions may occur, and in some cases the transfused blood corpuscles may be somewhat less viable than when the transfusion is from the identical subgroup. They recommend that if possible the donor should be of the same subtype as the recipient, particularly if the recipient possesses agglutinins of a_1 or a_2 type, which is most often the case in the AB group. For recipients of A_3 type O blood or A_2 blood is advised rather than A_1 blood if donors of the same type are not available.

Book Notices

Industrial Research Laboratories of the United States Including Consulting Research Laboratories. Compiled under the Supervision of Callie Hull for the National Research Council. Bulletin of the National Research Council, Number 104, December, 1940. Seventh edition. Cloth. Price, $3.50. Pp. 372. Washington, D. C.: National Research Council, National Academy of Sciences, 1940.

This edition of the National Research Council's directory of industrial research laboratories of the United States follows closely the pattern set by the previous bulletins. There are two thousand, two hundred and sixty-four entries, including consulting laboratories. In connection with each, information is supplied about personnel and the outline of research activities. Admission to listing occurs under the two major classifications of scientific investigation and industrial development. Not infrequently, industrial research units are maintained for both purposes. In addition to its value for convenient reference, the data compiled in this volume will be used to construct a history of industrial research in the United States.

Three Transactions on the Cerebrum: A Posthumous Work. By Emanuel Swedenborg. Now First Translated and Edited from a Photostat Copy of the Original Manuscript Preserved in the Royal Swedish Academy of Sciences. By Alfred Acton, M.A. D.Th., Dean of the Theological School of the Academy of the New Church. In Three Volumes, Including One Volume of Plates. Cloth. Price, $12 per set. Pp. 1,203; 179, Philadelphia: Swedenborg Scientific Association, 1938, 1940.

This translation of Swedenborg's main scientific work, De Cerebro, consisting originally of one thousand, four hundred and ninety-four pages, of which two hundred and eighty-two pages were lost, was made, according to the dedication page, "in commemoration of the two hundred and fiftieth anniversary of the birth of Emanuel Swedenborg, Philosopher and Seer."

Read in the light of Swedenborg's background and his avowed purpose in writing it, the Cerebrum is an interesting document. Military engineer, assessor of mines, member of the House of Nobles, Swedenborg was as versatile in his "scientific" interests as he was zealous in the performance of his official capacities. He published books on mathematics, physics, chemistry, geology, anatomy, physiology and cosmology. The very prolificacy of his writing means that much of what he had to say is necessarily but a digest or compendium of the work of others. In the Cerebrum, however, much of the material is based on his own observations or is the expression of what he terms "induction." As to his purpose: In an earlier book, the Infinite (published in 1734, four years before the Cerebrum), he stated as his thesis that the soul is organic, with its seat in the cortex. The first volume of the Cerebrum was written to demonstrate and prove the validity of this thesis.

The first volume (one thousand, two hundred and three pages) discusses the anatomy of the brain in terms of the cortical substance, the blood vessels within the cerebrum, the dura mater, the various blood sinuses, the medulla and so on. In each section the anatomic discussion is followed by conclusions, called "inductions," based on these data. The second volume (one hundred and seventy-nine pages) discusses the dura mater in like manner. These "inductions," which might more accurately have been termed "intuitions," are sometimes palpably false, sometimes remarkably penetrating. For example, Swedenborg states, "It is indeed the cerebrum itself that dispenses its blood; nor does the promotion of the blood depend in any way upon the heart, excepting in the circumstance that its systolic animation coincides with the moments of the vibrations of the heart. . . . In anger, indignation, courage, intentness, it admits an abundance of blood . . . ; but in sadness, grief, fear, it admits only little [p. 102]. . . . Inasmuch as the dura meninx [p. 190] is elastic and sensitive, therefore it is furnished with tendons and nerves. . . . That the brain commands and draws to itself such quantity and quality of blood and essence as its animal and sensual life requires [p. 381]. . . . That by the force of the animation of the two brains and two medullas . . . all vessels contained within the cranium and vertebral sheath are opened and constricted [p. 401]. . . . That the purely animal spirit is nothing else than the uttermost degree of the cortical or cineritious substance which, when released from its matrix, flowed in the purest fibers of the nerves, and also in the blood, of which it constitutes the inmost and genuine essence [p. 725]." On the other hand, more than two hundred years ago Swedenborg emphasized the concepts which only in relatively recent years have come to the fore; namely, that the pyramidal cells in the cortex are connected by fiber pathways to the peripheral organs and that the cortex is the super coordinator for many specialized functions subserved by specialized lower centers. The third volume, to which references are made in the first two volumes, contains many interesting anatomic plates from such authors as Bartholin, Eustachius, Malpighi and Leeuwenhoek.

The translation, made by Alfred Acton, dean of the Theological School of the Academy of the New Church, is literal, painstakingly careful, and able. The Cerebrum will be of interest not only to the followers of the esoteric cult of which Swedenborg was the founder but also to students interested in the history of neurologic development.

The Voice Governor: Give It a Chance. Correct Body Mechanics Does it. By Ralph M. Harper. Cloth. Price $2. Pp. 142, with 40 illustrations. Boston: E. C. Schirmer Music Co., 1940.

This book is obviously a labor of love. The author states that the observations on which it is based were those of his late voice teacher, the result of study extending over a period of seventy years, and that it took him twenty-seven years to assemble the material. There is little new in the material except for the author's somewhat original nomenclature (the "governor," the "vowel hinges," the "consonant pivots," the "diamond," the "lock") and his style of presentation. His thesis is, in brief, that good posture and abdominal breathing, under the control of the "governor," are fundamental to good speech and song. The "governor," the vital area, is a little spot located at the center of the epigastric triangle (half way between the tip of the ensiform and umbilicus) that bulges "like a tense little drumhead." It is "not only a point of equilibrium of respiration; it is a thermostat registering extremes of emotion; it is also a sensitive tambour recording the action of the nerve impulses for the production of sounds." The book is divided into three parts: part 1, "A New Analysis," devoted to a discussion of correct body mechanics and to several chapters on phonetics; part 2, "Discovery," which describes the results of laboratory work in "demonstration of the proper use of the whole body for the production of a beautiful voice," and part 3, "How to Study," suggestions for the speaker and singer. The book is liberally illustrated with figure studies of faulty and correct posture, diagrams and roentgenograms. The speaker, singer and voice teacher will find this small volume interesting not so much because of anything new as because of the amount of incidental material that is here gathered together. It is presented in a friendly, informal style, a style which, one feels, reflects the personality of the author.

Le métabolisme de l'azoté: La physiologie des substances protéiques. II. Dégradation, synthèse, métabolisme intermédiaire. Par Emile F. Terroine, professeur à l'Université de Strasbourg. Fascicule 1: Le catabolisme protidique. Caractères, conditions, mécanismes généraux, agents exécutants et régulateurs. Les problèmes biologiques, XXIII. Paper. Price, 40 francs. Pp. 164, with one illustration. Paris: Presses Universitaires de France, 1939.

In this monograph the well known investigator aims to present a comprehensive, systematic and detailed summary of all the factors known about the degradation of endogenous and exogenous proteins or amino acid, of their intermediary metabolism, their synthesis in health and disease, and of the influence of the endocrine and nervous systems and various forms of therapy thereon. This is a tremendous undertaking because there is so much that is not known, especially about the endocrine and nervous system aspects, and yet much is implied if one searches the literature sufficiently. The author naturally makes much use of what he calls the "coefficient of protein oxidation" as a means of determining the extent of protein oxidation. The coefficient is applied to urine and is the quotient one obtains by dividing the total urea nitrogen by the sum of urea nitrogen, amino nitrogen and ammonia nitrogen found in urine. Uric acid, purine bases, creatine and creatinine are not referred to, nor are the fundamental studies by Folin on nitrogen distribution on low and high protein diets or the classic studies by Chittenden and Mendel on minimum protein level. He

arrives at the important conclusion that when animals are kept on a minimum protein intake the "coefficient of protein oxidation" varies considerably in different species. However, no attempt is made to correlate this with surface area or weight. On the other hand, when the various species are forced to live on high protein levels this coefficient is uniformly in the range of 90 to 98 per cent. No doubt the usual custom of expressing urea nitrogen in percentage of total nitrogen would have shown these differences even more strikingly. The brief review on the effect of structures of amino acids on their lability and on the value of their optical isomers and derivatives is rather unsatisfactory, partly because relatively little has been done with the methods used by the author and partly because the beautiful studies on the value of optical isomers and various possible intermediates in growth and maintenance are not sufficiently emphasized. From his discussion of the mechanism involved in deaminization he concludes that, if the amino group is blocked by the substitution of one or more hydrogens of the amino group by a group which cannot be hydrolyzed by bacteria or enzymes in the digestive tract, the amino acid cannot be of biologic value in mammals. He also concludes that in the deaminization of the natural amino acids we may have this as a result of direct hydrolytic or oxidative action or through transamination by a-ketoglutaric acid. After the citation of a great amount of evidence and repetition, he concludes that the main sites of deaminization are the liver and kidney. He next considers the internal secretions as possible regulators of protein catabolism. The findings on the basis of blood chemistry are in many cases very contradictory. However, he grants that insulin by an unknown mechanism retards tissue proteolysis without affecting deaminization and that the thyroid secretion increases the metabolism, possibly through more or less specific action on arginine. The effects on the protein metabolism by the parathyroid, adrenal (cortical and medullary), gonadal and hypophysial hormones as based on pathologic, extirpation and organotherapeutic studies are very uncertain at the present time. However, the spleen he considers in some way to play a role in controlling the amino acid content of the red corpuscles. The work closes with a brief presentation of the uncertain state of our knowledge as to the role of the nervous system and vitamins in protein catabolism. A rather select bibliography of six hundred and fourteen references is included. There is no doubt that the author has attempted to answer too many questions in too limited a volume and with scant specific data for the involved problems under consideration. These difficulties we now realize all the more with the rapid advances made as a result of the use of isotopes and radioactive elements in studies on metabolism.

Die gynäkologischen Operationen und ihre topographisch-anatomischen Grundlagen. Von Prof. Dr. med. Heinrich Martius, Direktor der Universitäts-Frauenklinik Göttingen. Second edition. Paper. Price, 41.25 marks. Pp. 424, with 427 illustrations by Käthe Droysen. Leipzig: Georg Thieme, 1941.

In the preface the author states that this textbook is not intended to review gynecologic surgery but rather to present briefly the normal topographic anatomic relations as well as the topographic anatomic relations that have been altered by pathologic processes or by the surgeon. Accepted gynecologic surgical procedures are mentioned but not described in detail. The reader is referred to the articles in which the operative technics are described more fully.

The text is written simply and is fairly brief. The greatest contribution of the book lies in the wealth of excellent colored anatomic photographs and diagrammatic sketches by which the author describes the altered anatomic relations and outlines plastic procedures without necessitating a lengthy discussion of each operation. Since the text also presents many of the accepted surgical procedures employed by gynecologic surgeons, which are described fully in textbooks on operative surgery, only some of the technical details which this author stresses will be reviewed.

He recommends the use of split rubber tubes for intraperitoneal drainage and iodoform gauze strips for all extraperitoneal drainage. When there has been considerable bleeding in the cul-de-sac after difficult procedures, gauze soaked in tincture of iodine is inserted into Douglas's pouch and withdrawn through the vagina, to be removed at a later date.

The author's procedure for peritonization after subtotal hysterectomy is rather interesting since he uses only three sutures. One on each side catches the vesical peritoneum, the round ligament, the ovarian ligament and the peritoneum behind the cervical stump. The third suture draws the vesical peritoneum over the cervical stump. This method is utilized to prevent ischemia and infection.

The author prefers subtotal abdominal hysterectomy to total abdominal hysterectomy because it gives better support in repair of the peritoneal floor. Franz found operative mortality rates of 3.7 per cent for total and of 1.7 per cent for subtotal hysterectomy. The corresponding rates were 5.6 per cent and 1.3 per cent in von Jaksch's experience and 7.8 per cent and 1.6 per cent in the author's ten year experience. Albrecht in 2,305 cases of total abdominal hysterectomy had a mortality rate of 3.6 per cent and in 4,575 cases of subtotal abdominal hysterectomy a mortality rate of 1.9 per cent. Albrecht in a series of 3,436 cases of subtotal abdominal hysterectomy found that in only 0.32 per cent did carcinoma of the cervix develop. On the basis of these figures the author feels that subtotal hysterectomy is the operation of choice because of the small incidence of carcinoma of the cervical stump and the lower mortality rate in these men's hands. He also states that in 11 per cent of cases simple myomas recur subsequent to myomectomy.

The illustrations of the Wertheim procedure are excellent. In this type of hysterectomy the author removes only those lymph nodes which appear to be involved and recommends that interrupted sutures, rather than continuous sutures, be used in closing the abdominal wall after this particular type of operation. Before performance of Wertheim hysterectomy the vagina is prepared for eight days by irrigating it with 0.5 per cent solution of lactic acid three times a day and 1 per cent tincture of iodine twice a day.

The author feels that in ectopic pregnancy the opposite tube, if healthy, should be retained if the patient is young. In support of this he cites Dietrich's data, which show that in only 4.68 per cent of 4,526 cases was there recurrent tubal pregnancy, whereas in 28.62 per cent of 615 cases there was subsequent normal intrauterine pregnancy.

The author feels that, regardless of symptoms, ovarian tumors should be removed because of the danger of a twisted pedicle. The incidence of twisted pedicles in his series was 10 to 20 per cent in cases of ovarian cyst. Furthermore, he states that 20 per cent of all ovarian tumors are malignant. It is his impression that, in treatment of young patients who have an arrhenoblastoma or granulosa tumor, the opposite ovary should be saved since these conditions run a clinically benign course. In treatment of older patients, however, he recommends total abdominal hysterectomy as well as oophorectomy followed by roentgen therapy.

Vaginal plastic procedures, including many different methods, are beautifully described and illustrated. Also plastic operations on the fallopian tubes and transplantation of the fallopian tubes together with sterilization are well described. The author prefers presacral anesthesia in all vaginal plastic surgical procedures. In treatment of rectovaginal fistulas he frequently reinforces the repaired region by the use of fat surrounding the bulbocavernosus muscle. It is separated from the muscle and inserted underneath the vaginal vault during the closure. Rather extensive and clearcut descriptions are given with regard to repair of vesicovaginal fistulas. The author feels that all suturing should be done with a minimum of tension and he utilizes from three to six catgut sutures in all. The Schuchardt incision is recommended for more adequate exposure of the fistulous opening. Here again the author recommends that the fat from the bulbocavernosus muscle be utilized as a reinforcement between the vaginal mucous membrane and connective tissue and the bladder wall. The postoperative care of these patients is interesting. The author recommends that the bladder be irrigated after the second postoperative day with 50 cc. of 3 per cent solution of boric acid twice a day. This amount is increased gradually up to 200 cc. by the sixth or seventh day. After the seventh day the catheter is clamped gradually and is removed on the ninth day.

The book is written beautifully and every procedure described is illustrated excellently by clearcut anatomic drawings.

Industrial Hygiene and Occupational Diseases: Course Outline and Digest of Lectures. Coordinator: Edward R. Granniss. Conducted by the Center for Safety Education, Division of General Education, New York University, in cooperation with the National Conservation Bureau, New York City. Paper. Various pagination. New York, 1941.

This volume represents one approach to the existing requirement for more and better organized instruction in industrial hygiene and occupational disease control. The subject matter contained in the fifteen lectures collected here in mimeographed form is not intended for physicians or industrial hygienists but rather for insurance and supervisory personnel in close personal association with working men and environment. Nevertheless, much of the information could be studied with profit by practicing physicians, and certainly a review of this material, particularly its style of organization, would be helpful to curriculum committees in medical and professional schools. The headings of the lectures include such topics as dust producing materials, metallic poisoning, toxic gases, toxic organic solvents, dermatoses and venereal diseases and then proceed to more general considerations of certain social and economic aspects of occupational diseases and specific methods of control. A reasonably complete industrial hygiene bibliography is included.

Dietetics for the Clinician. By Late Milton Arlanden Bridges, B.S., M.D., F.A.C.P. Fourth edition. Cloth. Price, $10. Pp. 960. Philadelphia: Lea & Febiger, 1941.

The prompt acceptance and repeated editions of this book made desirable a new edition, which had long been planned by Dr. Milton Arlanden Bridges before his untimely death. Under the leadership of Marjorie R. Mattice, this edition has been completed. Chiefly apparent is the substitution of typical diets for the sample menus previously used. These were prepared by Dorothy M. Stephens, chief dietitian of the New York Post-Graduate Hospital. Naturally the section on vitamins has had extensive revision. Much new tabular data and other information have been added. The vitamins are represented by data as late as the end of October 1940. Many collaborators have revised their material and brought it up to date. The book is well organized and most informative; in fact, one of the most useful textbooks on dietetics now available.

La gastrectomía: Sus resultados, consideraciones clínico-quirúrgicas. Por Enrique P. Viacava. Tesis de doctorado, Universidad nacional de Buenos Aires, Facultad de ciencias médicas, Escuela de medicina, Núm. 5200. Paper. Pp. 76, with 40 illustrations. Buenos Aires: Sebastián de Amorrortu e Hijos, 1940.

This is a thesis for the medical doctorate from the University of Buenos Aires. It is a well written discussion of the advantages and disadvantages of the several types of operation for resection of the stomach. There are many good illustrations showing the roentgenologic appearance of the stomach and jejunum after operation. There are reports of a number of cases of subtotal resection. Dr. Viacava concluded that the Polya and Hoffmeister-Finsterer operations have the least mortality and are the best today for gastric resection.

The British Encyclopaedia of Medical Practice Including Medicine, Surgery, Obstetrics, Gynaecology and Other Special Subjects. Complete Index. Under the General Editorship of Sir Humphry Rolleston, G.C.V.O., K.C.B., M.D. Cloth. Price, $10. Pp. 486. Toronto & London: Butterworth & Co., Ltd., 1941.

From time to time THE JOURNAL has published reviews of the various volumes of the British Encyclopaedia of Medical Practice. Now comes the complete index, a comprehensive volume covering all of the material available in that system. It is wholly a subject index, including the material not only in the complete set but also in the supplementary volume of Surveys and Abstracts published in 1939. With intelligent use of the index, the cyclopedia becomes a most practical reference work.

Physical Diagnosis. By William Nance Anderson, B.Sc., M.D., Associate Clinical Professor of Medicine at the University of Southern California School of Medicine, Los Angeles, California. Cloth. Price, $4.75. Pp. 424, with 92 illustrations. Philadelphia: Lea & Febiger, 1940.

This practical small book on physical diagnosis is not greatly different from several others on the market. It is divided into three parts, part I dealing with the fundamental principles of physical diagnosis, part II with physical examination, and part III with physical diagnosis in disease. The style is lucid and the subject is practically and simply presented. The volume is well illustrated. All padding has been eliminated, and many of the older infrequently used diagnostic tests have been omitted. Chronic adhesive pericarditis is still stressed, although from a practical clinical point of view it is a great rarity. Chronic constrictive pericarditis producing chronic cardiac compression and the syndrome of acute cardiac compression have been omitted. Examination of the nervous system is not included in this work.

Estenosis hipertrófica del píloro en el lactante. Por el Dr. Carlos Ruiz. Tesis de doctorado. Universidad nacional de Buenos Aires, Facultad de ciencias médicas, No. 5373. Paper. Pp. 80. Buenos Aires: El Ateneo, 1940.

This is a thesis for the medical doctorate. It is based on a study of 21 children with congenital stenosis of the pylorus. Dr. Ruiz reviewed the literature on the supposed causes of the condition and came to the conclusion that little is known except that there is a hypertrophy of the muscle of the pylorus and probably spasm. He discusses details of the medical treatment and believes that it can best be carried out in the hospital with the child away from the family. Such treatment should not be persisted in until the child is emaciated. As soon as it appears that good results are not going to be obtained, the Fredet-Rammstedt operation should be performed.

A Textbook of Ophthalmology. By Sanford R. Gifford, M.A., M.D., F.A.C.S., Professor of Ophthalmology, Northwestern University Medical School, Chicago. Second edition. Cloth. Price, $4. Pp. 470, with 233 illustrations. Philadelphia & London: W. B. Saunders Company, 1941.

In this revised edition Dr. Gifford has given consideration particularly to the use of such newer therapeutic agents as sulfanilamide, heparin, thiamine hydrochloride, riboflavin and other vitamins. The publishers report that the chapter on the sclera has been entirely rewritten and that there is a complete revised discussion of diseases of the cardiovascular renal system. The first edition of this shorter textbook of ophthalmology was most successful, which no doubt prompted the publication of a new edition. Particularly to be commended are the numerous excellent illustrations, many of them in color. For the specialists as well as for the general practitioners these colored plates are an invaluable aid.

Occupational and Related Dermatoses. Abstracts from the Literature for the Years 1935 to 1939, Inclusive. By Louis Schwartz, Medical Director, and Leon H. Warren, Acting Assistant Surgeon. From the Office of Dermatoses Investigations, National Institute of Health. Prepared by direction of the Surgeon General. Federal Security Agency, U. S. Public Health Service. Public Health Bulletin No. 266. Paper. Price, 20 cents. Pp. 160. Washington, D. C.: Supt. of Doc., Government Printing Office, 1941.

This bulletin is a five year report of the Committee on Skin Irritants of the Industrial Hygiene Section of the American Public Health Association and contains abstracts of pertinent references in the medical literature on occuptional and related dermatoses. Accumulated abstracts of this kind collected by the committee now cover the period from 1926 to 1939 inclusive.

Medicine Preferred (A Modern Play in Three Acts). By E. Francis McDevitt. Cloth. Price $1.50. Pp. 84. New York: Fortuny's Publishers, Inc., 1940.

This crude, amateurish job of play writing depicts a self-righteous young doctor of subadolescent emotional development who blunders through three acts of mock heroics about dope rings, charity patients and unwarranted attacks on the medical profession.

Pulmonary Diseases in the Mining Industry. By R. R. Sayers, Director, Bureau of Mines. United States Department of the Interior, Bureau of Mines. Information Circular 7146. Paper. Pp. 26. Pittsburgh, 1941.

This paper contains extensive information about the incidence of pulmonary disease in miners, etiologic relationships to inhaled dust, permissible concentrations of dust in mining operations and accepted ways of controlling dust exposure. Attention is called to the fact that, although silicosis has preoccupied lay and professional attention during recent years, bronchitis, influenza, pneumonia and tuberculosis are far greater sources of suffering and economic loss.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

HYPOGLYCEMIA AND ASTHMA

To the Editor:—**A married woman aged 46 has been subject to attacks of asthma or bronchospasm since childhood. She has multiple sensitivity, reacting strongly to at least ten different substances, such as animal hair, feathers, horse dander, house dust, ragweed pollen and several foods. She has frequently required epinephrine for the relief of bronchospasm. Recently it was found that she has a consistently low blood sugar. One report showed 66 mg. per hundred cubic centimeters of blood two hours after a meal. The fasting blood sugar level varies from 50 to 60. For a time she took rather large amounts of sweetened fruit juice, candy and the like and succeeded in maintaining the blood sugar level at 90 to 100 mg. per hundred cubic centimeters. When her blood sugar was at this level she had almost no bronchospasm and naturally had much more energy and endurance. The ingestion of enough starches and sweets to maintain the blood sugar at a level which kept her free from bronchospasm resulted in a weight gain of about 14 pounds (6.4 Kg.). On discovering the rapid gain, she reduced her intake of carbohydrates, the blood sugar fell and the bronchospasm returned. Is there any way in which a normal blood sugar level can be maintained aside from the ingestion of large amounts of carbohydrates? The patient does not need to gain more weight, and she objects to a diet which causes a gain. Any information relative to this problem will be appreciated.**

M.D., Wisconsin.

ANSWER.—Other than by feeding carbohydrate there is no practical method by which the blood sugar can be raised. Temporarily epinephrine hydrochloride will raise the sugar in the blood, and thyroid given to diabetic patients makes the diabetes more difficult to control. Thyroid could be employed if the metabolism is low.

Asthma is not as infrequent among the diabetic as supposed, now that experience with more patients with a longer duration of the disease has been obtained. Invariably the use of epinephrine with a diabetic patient during treatment of an asthmatic attack complicates and makes more difficult treatment with insulin.

Repeated observations of the blood sugar before and after meals should be made before drawing any conclusions about the prevalence of low values in asthma. Especially should these be repeated during periods when the asthma is active as well as when the asthma is in a latent stage. Several authors, including among others MacQuiddy and his co-workers, Black, Wagner and Rackemann, have shown that the dextrose tolerance tests are about the same among patients with asthma as with normal persons.

Diabetic and asthma patients live for years; consequently any plan of treatment must be conceived in this spirit. Obviously any individual with a low blood sugar is more unstable than with a normal blood sugar, and if a low blood sugar occurred in an asthmatic person it is reasonable to conclude that it would affect the asthma deleteriously. Gain in weight is easily avoided by reduction of the fat in the diet.

IODIZED POPPYSEED OIL FOR DIAGNOSIS IN PRESENCE OF TUBERCULOSIS

To the Editor:—**What is the present consensus on the use of iodized poppyseed oil in the lungs for diagnosis in the presence of pulmonary tuberculosis?**

Edward G. Jones Jr., M.D., Baltimore.

ANSWER.—Iodized poppyseed oil and other forms of iodized oil are now freely used as aids in diagnosis even for persons who are known to have pulmonary tuberculosis. There is often the question of obstruction in a bronchus or one of its ramifications resulting in atelectasis, and iodized oil is administered with great advantage in determining the location and extent of the obstruction. This facilitates the subsequent work of the bronchoscopist. Again, the question arises as to whether bronchiectasis and abscesses are complicating pulmonary tuberculosis to such a degree as to render collapse therapy of little or no value. The administration of iodized oil usually aids greatly in detecting on roentgen inspection evidence of such complications. After collapse therapy, particularly extrapleural thoracoplasty, there may be persistent cough and expectoration even though tubercle bacilli cannot be recovered from the sputum. The introduction of iodized oil into the bronchial ramifications on the side of the collapsed lung often enables one to visualize evidence of bronchiectasis, particularly in the basal ramifications. This may have been present before or have developed since the operation was performed; its detection, when the bronchiectasis is nontuberculous, aids the physician greatly in explaining the cause of the persistent cough and expectoration and relieves the patient's mind of the suspicion that the surgeon may have been unsuccessful in treating the tuberculous disease.

At one time it was believed that iodides have a deleterious effect on tuberculous lesions. This idea was encouraged when they were employed extensively as an aid in recovering tubercle bacilli from sputum. Before the finer aids in diagnosis were available, many physicians refrained from labeling a lesion tuberculous until tubercle bacilli could be found in the sputum. Iodides were frequently administered in cases in which bacilli could not be found; they often resulted in more profuse expectoration of sputum from which tubercle bacilli were recovered, and the conclusion was later drawn that iodides had actually broken down the lesions, thus liberating tubercle bacilli. In recent years much doubt has arisen in the minds of physicians as to whether iodides, as they are usually administered, have any deleterious effect on tuberculous lesions. While they increase and liquefy the secretions in the bronchial tubes, so as to facilitate expectoration, it seems probable that they only liberate mucus and other material in the region of the lesion, with no harm to the lesion itself.

When iodized oil is introduced into the bronchial tree of a tuberculous patient, its iodine content is liberated so slowly that one need not fear a concentration sufficiently great to do harm. If oil is introduced by the supraglottic method, some may be swallowed, and when it reaches the intestine the iodine is promptly liberated from the oil, even to the point of producing symptoms of iodism. To prevent this effect, or to reduce it considerably, 1 drachm (4 Gm.) of magnesium sulfate administered immediately after the oil has been introduced is effective.

TESTING FOR SENSITIVITY TO DYES

To the Editor:—**We have in our community a dyestuff factory whose officials are much interested in having their employees checked for sensitivity to and tolerance of the components of aniline dyes, especially methyl cyanide. Are there such tests? Would it be possible to procure literature on these subjects?**

C. A. S. Williams, M.D., Marietta, Ohio.

ANSWER.—Tests of the character contemplated are chiefly limited to cutaneous irritants. Some finished dyes are cutaneous irritants or sensitizing agents, such as paraphenylenediamine, but a larger number of irritants are likely to be found among intermediates and basic materials. Patch or contact tests for cutaneous irritants are valuable under many circumstances. However, the determination of precise causes of irritation of the skin in dyestuff factories often is difficult, since irritation may result from such extraneous sources as soaps, solvents used in factories for deterging, fungous infection, food allergies and friction.

A patch test is based on the procedure of applying small quantities of any suspected substance to intact (usually) cutaneous surfaces, ordinarily under cover of rubber damming or adhesive plaster for periods of twenty-four to ninety-six hours. Obviously, the material applied must be diluted to a point below that of irritation for all persons. The technic of patch testing may be found in almost all recent textbooks on dermatology and particularly in Schwartz and Tulipan (Occupational Diseases of the Skin, Philadelphia, Lea & Febiger, 1939). The patch test, while apparently simple, may involve complex ramifications. For example, some substances are irritants only in the presence of acid sweat; some substances in themselves nonirritating may become irritants in the presence of other concomitantly used substances; some persons may respond actively to patch tests during one period but may be wholly unresponsive at other times; contact with some batches of a dyestuff, through instability or impurities, may lead to positive results while other lots, assumed to be identical, may provoke no irritation. In the textbook referred to, in Prosser White (The Dermatergoses or Occupational Affections of the Skin, London, H. K. Lewis & Co., Ltd., 1934) and in Vaughan (Strange Maladies, New York, Doubleday, Doran & Co., 1931) are many references to various irritants and sensitizing agents. On occasion positive reactions in contact tests may suggest the cause of other noncutaneous disorders from the same cause. Thus a positive cutaneous reaction to applied amines may suggest the cause of an obscure asthma or allergic edema. Conversely, there are no known practical tests for measuring the tolerance of various persons to such substances used in the manufacture of dye as benzene, toluene and phenol. There do exist fairly well accepted standards representing tolerable limits of many of these substances. Thus benzene should not be tolerated in a workroom atmosphere to an extent greater than 100 parts per million of air for continuous exposure.

TREATMENT OF MISSED ABORTION

To the Editor:—A primipara aged 21 first consulted me regarding her pregnancy on Feb. 1, 1941. According to her menstrual history her due date was approximately the first part of May. About January 7 she fell and sprained her ankle; since that time no fetal movements had been perceptible to the patient. On initial examination I found the fundus to be 1 cm. below the navel; no fetal movements or heart tones could be made out. Urinalysis and blood pressure were normal. When first seen, the patient was having some pains in the lower part of the abdomen and a small amount of vaginal bleeding. My impression was that the patient had been carrying a dead fetus and that the case represented a missed abortion. However, the pains and bleeding subsided despite an attempt at a medical induction, and prior to her leaving the hospital a sterile vaginal examination revealed a long tight cervix. Since leaving the hospital the patient has felt fine except for one period of several days when she had a vesperal temperature of 100-101 F. and some lower abdominal cramps. No fetal heart tones or movements have been detected at any time, and the size of the uterus has diminished somewhat these past several weeks. Is expectancy the proper treatment in this case? If active intervention is justified, when and how should it be done?

Jerome M. Spatz, M.D., Cut Bank, Mont.

ANSWER.—The most likely diagnosis is a missed abortion. The uterus has failed to increase in size and has actually decreased during the period under observation. The absence of fetal heart tones is likewise significant. It is possible that a roentgenogram of the lower part of the abdomen might reveal a fetal skeleton. Hydatidiform mole must likewise be considered in the differential diagnosis. A Friedmann or an Aschheim-Zondek test should be positive in high dilution in this event.

There is no immediate indication for the evacuation of the uterus in a missed abortion. The gestational sac and its contents produce no undesirable symptoms. In time the patient will go into labor and pass the products of conception. There is an increasing irritability on the part of the uterus and it becomes more and more responsive to solution of posterior pituitary. In the event that it is decided to terminate the pregnancy, small doses of solution of posterior pituitary will usually start the uterus into action. The usual practice is to give 2 or 3 minims (0.15 cc.) at fifteen to twenty minute intervals until uterine activity is established.

Recent experiences indicate that large doses of estrogen will increase the uterine irritability and its responsiveness to solution of posterior pituitary in the patient with a missed abortion. A patient can be given 50 or 100 thousand rat units of estrogens a day over a period of several days and in the event that the gestational products are not expelled this medication can be followed by solution of posterior pituitary. It is rarely necessary to resort to a mechanical dilation of the cervix and instrumental evacuation of the uterine cavity.

UREA-SPLITTING INFECTION OF THE URINARY TRACT

To the Editor:—A man aged 39 had his right kidney removed for a stone in the ureter in 1933. At present he suffers frequent burning in the urethra while voiding, general fatigue, lack of energy, loss of appetite and loss of weight. He is slightly underweight, and his blood pressure is 100 systolic and 60 diastolic. This general condition of disability has not improved, notwithstanding tonics and routine treatment. His urine has been constantly alkaline, and I have not succeeded in acidifying it either with the proper protein diet or with a large dose of ammonium chloride. The urine does not contain albumin, sugar, casts, blood or pus. It exhibits, however, a considerable quantity of triple phosphates and numerous staphylococci. The patient was under observation in a New York hospital about three months ago, at which time cystoscopic examination revealed a badly inflamed bladder with whitish elevations over the mucous membrane. Examination of the blood revealed that the level of nonprotein nitrogen and urea was elevated. My particular aim at present is to acidify the patient's urine, since I suspect that he suffers from a urea-splitting bacterial infection which could be better controlled in an acid medium, the same principle applying to the presence of the staphylococci in the urine. How could this be achieved in view of the failure of the ordinary methods I have used? Would it be advisable to administer sulfathiazole, or would this drug be dangerous to the function of the remaining kidney? Has sulfathiazole proved beneficial in the presence of staphylococci in the urinary tract? The main complaints of the patient are a burning sensation when voiding and heaviness of the urine, particularly on the days when the phosphate sediment reaches a high degree of density. Any suggestion would be greatly appreciated. M. F. Mantia, M.D., Darien, Ga.

ANSWER.—A case of this kind presents one of the most difficult problems in the field of urology. When there is a urea-splitting infection present, any of the nonacidifying agents are not usually of benefit. As Staphylococcus aureus is the infectious agent, sulfathiazole is the drug of choice and may be administered in a moderate dose of 30 to 45 grains (2 to 3 Gm.) daily without difficulty. A patient should be under constant observation during the time this drug is given. A thorough search for all foci of infection should be made, and the prostate should be thoroughly investigated and treated if an existing infection is found.

WATER FILTERS FOR HOMES

To the Editor:—Can you give me any information about the chemicals used by the Puro Filter Corporation of Illinois to cleanse and disinfect the filters which they install in private dwellings? For a monthly fee they send a man to inspect the filter and rinse it out with some kind of fluid. They describe the fluid as an antiseptic. Any information you can give me about these filters would be appreciated. I am interested in the filtration of water for drinking and cooking purposes for a family of seven people. M.D., Illinois.

ANSWER.—The clogged pores of fused porous filters commonly used for household purposes may be cleaned by using a strong solution of caustic soda or hydrochloric acid followed by a neutralizing solution and thorough rinsing. Such filters are effective in removing suspended matter from water, but they should not be depended on for the purification of water from a contaminated source. As a rule filters which are installed under contract for regular cleaning by a service man are more satisfactory than those sold without this service, because the average home owner is likely to neglect the filter. Such neglect may result in the filter serving as a breeding place for bacteria which may have been filtered out of the water supply. The choice of filters for domestic use must be made based on the character of water to be filtered and the kind of service desired.

There are two main types of household filters: those made of unglazed porcelain, of the Pasteur-Chamberland type, and those made of diatomaceous earth, the Berkefeld type. Sandstone, charcoal, asbestos and a great variety of filtering substances also are used. If there is a question of contamination, boiling should follow the filtering. The sterilizing fluid employed by the Puro Filter Corporation contains free ions of iodine, chlorine and copper. Activated carbon and bone char also are employed in the purifier. The sterilization process is reported to be effective in destroying molds which ordinarily gather in a medium of this sort.

POSSIBLE NARCOLEPSY IN ELDERLY WOMAN

To the Editor:—A woman aged 74 whose only previous sickness was painful rheumatism at the age of 21 (in 1888), at which time she could not even stand the weight of the sheets on her body and was anemic, now has spells after waking normally in the morning and proceeding to her regular work but then lapsing into a state of forgetfulness. Her mind begins to wander sometimes, and she says "I must fix father's breakfast." (Her father died twenty-two years ago.) She then goes to bed and falls asleep, and she can hardly be roused. If propped up and presented with food she will feed herself or, if somnolent, will accept food if it is fed to her. Her eyes may be open, but there is a vacant stare, and she does not recognize any one, falls asleep again and awakens several hours later not having any knowledge or recollection of what has occurred. She is then perfectly well otherwise. She has had these spells on Dec. 13, 1939 and in 1940 on January 10 and 21, March 11, April 9, May 11, June 4, July 14 and 21, September 2, October 3 and December 2. Her blood pressure is normal for her age (systolic 160). Her urine is normal, but she is anemic. I have given her a saline laxative every Saturday, and when it works well she has no spells for some time. I am giving her tablets of amphetamine sulfate during her spells. She has taken hematinic tablets with liver concentrate for her anemia. Thank you for whatever help you may give. E. H. Sauvignet, M.D., Laredo, Texas.

ANSWER.—The case appears to fall into the vague field of the narcolepsies or the borderland of epilepsy. Cataplexy, often associated with narcolepsy, is absent; the patient, moreover, is older than most sufferers from this unusual syndrome. The rheumatic attack, occurring fifty years before, would not appear to be relevant to the present illness. Antecedent encephalitis is more likely as a cause of the narcolepsy. Amphetamine sulfate should be used with some caution in a patient of 74 years. Ephedrine hydrochloride or sulfate may be given over a longer period with relative safety, in doses of 0.025 Gm. (⅜ grain), two or three times a day.

MUCOUS DISCHARGE FROM VAGINA—PAIN OF CREST OF THE ILIUM

To the Editor:—1. I would appreciate information as to the origin and treatment of a profuse uterine discharge resembling mucus in appearance and manifest especially after the menses or following coitus. The discharge can be observed issuing from the cervix and is so profuse that patients are required to wear a napkin. 2. Some patients with gynecologic complaints give a history of severe pain and tenderness along the crest of the ilium. On examination adnexal disease is found. Will you kindly explain whether or not this is a known condition and how the atypical location of symptoms can be explained? M.D., New York.

ANSWER.—1. Profuse mucous discharge almost certainly arises in the cervix and not in the uterine cavity. Some women regularly have such a discharge of mucus for two or three days during the midmenstrual interval. In others a mucous plug may be seen in the cervical canal through a speculum

at this time in the menstrual cycle. Such a mucous discharge is supposed to indicate that ovulation is about to take place or has recently occurred. It may be stimulated or loosened from the cervical canal by coitus in some instances. There is generally no satisfactory treatment if the mucous discharge is associated with ovulation except to suppress ovulation. However, in some cases in which the discharge is linked with ovulation and in most other cases in which it is not associated with ovulation, cauterization of the cervical canal will bring relief. The cauterization must not extend too near the internal os or too deeply into the cervical tissue; otherwise a stricture may result.

2. Pain and tenderness along the crest of the ilium associated with adnexal disease is an uncommon occurrence. There is no satisfactory explanation for this association except in the few cases in which large adnexal masses are densely adherent to the iliac fossas. In these cases the pain and tenderness are due to direct involvement of the periosteum in this region.

TINCTURE OF BELLADONNA AND SINUSITIS

To the Editor:—**A patient with frontal sinus headache instilled in her nose about 2 droppers of tincture of belladonna. After a sensation of burning lasting for about fifteen minutes her headache passed away and did not return until three weeks later, when she contracted another cold. A neighbor also suffering from sinus headaches asked her for some headache remedy she might have. The patient offered her the same drops, which she thought were the drops prescribed for her sinus condition (isotonic solution of ephedrine sulfate 1 per cent). She instilled about 2 droppers of tincture of belladonna in her friend's nose. Severe burning and slight dilatation of the pupils were followed by disappearance of the headache and long lasting relief. How would you explain this effect of the tincture? Is there any danger to the nasal mucosa from repeated use of this tincture?**

M.D., Maryland.

ANSWER.—It is strange that a single application of this drug could so dramatically affect the course of sinusitis, which normally lasts days or weeks. One must consider that in the 2 cases described it was just a coincidence; to do differently would give the medication credit which it probably does not deserve.

The dangers of using tincture of belladonna in the nose are those of atropine taken internally or absorbed locally from any mucous membranes. Atropine is a powerful drug, with a number of well known unpleasant and sometimes unsafe reactions. Instilled into the nose the drug would be absorbed by way of the mucous membrane of the nose, and some of it would be absorbed from the gastric mucosa from swallowing the medication. Its use in the nose would be, to say the least, unusual. It would be necessary to repeat this clinical experiment enough times under proper control and with caution before one could arrive at conclusions definite enough to answer the query accurately.

NEUROFIBROMATOSIS AND "COFFEE SPOTS"

To the Editor:—**What is the likelihood of a patient with "coffee spots" developing the typical tumors of von Recklinghausen's disease? Would the possibility of such tumors be increased by pregnancy? Would the presence or absence of mental deficiency or a family history of neurofibromatosis alter the prognosis?**

M.D., Pennsylvania.

ANSWER.—"Coffee spots" occur as oval yellowish brown macules of varying size, usually present on the trunk. This type of pigmentation without tumor formation is of frequent occurrence and is a definite phase of the disease. The brown macules when occurring alone constitute the "forme fruste" of the disease. Mental symptoms in the form of various degrees of imbecility and epilepsy occasionally occur as a part of the syndrome. The condition is frequently hereditary, and persons showing the slightest evidence of the eruption should be informed of the familial nature of the malady and advised against having children (Jones, Randolph, Jr., and Hart, Deryl: Multiple Neurofibromatosis [von Recklinghausen's Disease], *Ann. Surg.* **110**:916 [Nov.] 1939). Other pertinent references are Becker, S. W., and Obermayer, M. E.: Modern Dermatology and Syphilology (Philadelphia, Montreal and London, J. B. Lippincott Company, 1940) and Levin, O. L., and Behrmann, H. T.: Recklinghausen's Disease (*Arch. Dermat. & Syph.* **41**:480 [March] 1940). The tumors commonly enlarge and the macules become darker during pregnancy. The prognosis in this disease is usually good as regards life, although the tumors may degenerate into neurogenic sarcoma. The prognosis of the mental deficiency in these cases is not good. A family history of neurofibromatosis would increase the likelihood of the occurrence of the disease.

MALE SEX HORMONE FOR ENGORGEMENT OF BREAST

To the Editor:—**Does the use of male sex hormone for the relief of engorgement of the breast and pain, due possibly to approaching menopause, carry with it any danger of malignant growths as an aftermath?**

Walter C. Hurwitz, M.D., New York.

ANSWER.—The use of male sex hormone for the relief of mammary engorgement and pain is generally successful regardless of whether the patient is near menopause or not. Danger of malignant growths is not recognized, but if large doses are used over a long period of time there is definite likelihood of signs of virilism, such as growth of hair on the face, lowered pitch of the voice and slight enlargement of the clitoris. Likewise, if a large amount of male sex hormone is used the patient may have an acneform eruption and she may gain weight. However, all these abnormal manifestations disappear after the use of the hormone is discontinued.

HYSTERECTOMY NOT INDICATED FOR MIGRAINE

To the Editor:—**A woman aged 44, with typical migraine for the past thirty-four years, with attacks not synchronous with the menses, has in the past year noted a change to attacks of severe bleeding synchronous with the menses. Removal of the uterus has been offered as a possible relief from the migraine. An opinion would be appreciated.**

Leon Paris, M.D., Bronx, N. Y.

ANSWER.—There is no general indication for operative removal of the uterus or the ovaries as a relief for migraine. In case of severe bleeding a thorough examination may reveal a pathologic condition which in itself necessitates operation. If not, endocrine therapy may be tried and sterilization by any means avoided. It is possible that the patient is approaching the menopause and does not need to be vigorously treated.

TEETH NOT DISCOLORED BY ACETYLPHENYLHYDRAZINE

To the Editor:—**Several months ago I noticed in Queries and Minor Notes that acetylphenylhydrazine was recommended for controlling the excessive blood count in polycythemia vera, and, since I had a patient under my care, I immediately placed her on this medication, which has controlled the red blood count remarkably well. She, however, complains that two of her lower front teeth have become discolored with a brownish stain since she began taking the medicine and she believes that it was caused by the medicine. Could you give me any information as to whether this drug would be likely to have any effect on the teeth in this manner or not?**

A. E. Coyne, M.D., Washington, D. C.

ANSWER.—Acetylphenylhydrazine does not affect the teeth when given in capsule form. The discoloration complained of must be due to some other cause.

HYPERSENSITIVITY TO SPERMATOZOA

To the Editor:—**From a medicolegal standpoint, I should like to learn whether or not there has been any experimental work done to substantiate the possibility of a woman becoming hypersensitive to the sperm of her sex partner. I would appreciate references.**

Robert J. Striegel, M.D., Buffalo.

ANSWER.—There is no experimental evidence to indicate that a woman can become hypersensitive to the sperm of her sex partner, assuming that this term is used in an allergic sense. The so-called hostility of the normal endocervical secretions to spermatozoa has likewise found little support in recent careful studies.

EFFECT OF PAINT ON PREGNANT WOMEN

To the Editor:—**I would appreciate any information concerning the ill effect on pregnant women from being in close contact with fresh paint.**

M.D., Missouri.

ANSWER.—There should be no ill effects from being in close contact with freshly painted surfaces. There would, of course, be no lead hazard inasmuch as there would be no dust or fumes. A highly susceptible person might be annoyed by the smell of turpentine or thinner used in the paint, but it would be most unusual if this produced any real deleterious effect, even in pregnant women.

ISOLATION OF PATIENTS WITH ERYSIPELAS

To the Editor:—**What should the regulations be with regard to erysipelas patients treated in hospitals? Should they be isolated on the medical or the pediatric floors, or transferred to the isolation pavilion?**

Walter J. Farrell, M.D., Johnson City, N. Y.

ANSWER.—It is not customary to isolate patients with erysipelas in separate isolation pavilions, but it is desirable to do so. It is undesirable and objectionable to have them near other surgical cases; and in medical or pediatric wards they should be isolated in separate rooms.